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AMMUNITION BULLETIN No 45

ITEMS 1218A-1255

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MINISTRY OF SUPPLY

AMMUNITION BULLETIN No.42 RESTRICTED

ISSUED BY
CHIEF INSPECTOR OF ARMAMENTS

Item No.

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ENEMY AMMUNITION

GERMAN

ITEM NO	
1246	7.5 cm Pak. 40 Ctge Q.F. Hollow charge fuzed AZ 38 Fig. 501
1247	7.5 cm Pak 41 Ctge Q.F. APBC/T. Shot (Patr Pzgr 41.H.K.) Figs. 502 & 503
1248	7.5 cm. Pak 41 Ctge Q.F. APBC/T. Shot (Patr Pzgr 41.H.K.) Figs.504 & 505.
1249	7.62 cm Pak 36 Ctge Q.F.APBC/T Shot (Pzgr 40) Fig. 506
1250	7.62 cm. Pak 36 Ctge. Q.F. APCBC/T. (Pzgr 39) Fig.507
1251	Tracer from 7.62 Pak 36 APCBC/T (Pzgr 39) Fig. 508
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1253	Hollow charge anti-tank hand grenade (Panzer Wurfmine (L)) Fig.510
1254	32 cm. Incendiary Rocket (Wurfkorper M.Fl.50) Figs. 511 and 512
1255	Fuze Wgr Z 50 + (Type A) Fig. 513.

AMENDMENTS

Bulletin No.42, Item 1094.

Page 4, Q.F. 6 pr.
DD(L)7499. Col.9 Delete "and A.T. only"
DD(L)9869. Col.9 Delete "No.1" and substitute "No.13"

Page 8. Q.F.5.25 in.Gun
DD(L)14261. Col.10. Insert "or No.117 with 22 dr. C.E. pellet for Anti-ship"

Page 10. B.L.6 in. Gun
DD(L)4052(1) Col.10. For "No.119 fuze" substitute "No.199 fuze"

Bulletin No.43, Item 1141

Page 9. After line 26 insert:-
"Ctges. S.A.20 mm.Oerlikon HE/1" ....
"20 mm. H.E.1."
Lines 27 and 28:-
Delete "OER" from the abbreviation shown.

Bulletin No.43, Item 1175

Page 34 line 3
For 1 lb. 0¾ oz. read 1 lb. 7½ oz.

Bulletin No.44, Item 1213

Page 22
Heading - After "German Fuze Wgr Z 50 +" Add "Type B"

Fig.488
Heading - After "German Fuze Wgr Z 50 +" Add "Type B"

1218.A. SHELL, 3.7 in. HOW. - PACKAGE

Reference Item 1242 this Bulletin. Q.F. 3.7 in. shell fitted with Fuzes Nos. 117 or 119 cannot be packed in the normal package, viz. Box C.178. For immediate requirements all natures of 3.7 in. How. ammunition will be packed 2 rounds in wood Box C.316, pending the development of a watertight steel package. Shell will normally be issued fuzed unless packed for jungle warfare when the shell will be plugged and the fuzes issued separately in hermetically sealed packages.

1219. BOXES, AMMUNITION - ALTERNATIVE WEBBING HANDLES.

Approval has been given for the use of Webbing, drab, thick, as an alternative to rope for handles on ammunition boxes.

1220. GRENADE, HAND, No.36M, MARK OF DETONATOR

Reference Bulletin No.39, Item 975. Detonators for the No.36M Grenade which incorporate Safety Fuze No.20 Mk.I will now be designated "Mk.VII" instead of "Mk.VI", the latter Mark having been allocated to Indian production.

1221. SHELL, Q.F. H.E. 17 pr. and 77 mm. Mk.III. M. OF CONVERTED FILLING (Fig.497)

Method of Converted Filling to design DD(L)18957 in respect of the abovementioned shell has been approved. The shell is fitted with Adapter 1.6 in. fuze-hole No.1 Mk.I to take Plug, fuze-hole, 1.05 inch Mk.IM, IF or IS, or Fuze No.125. A paper lined central cavity accomodates Exploder, Shell "B" over which is an additional 5 dr. picric powder exploder and two discs of tracing cloth or manilla paper.

The bursting charge is T.N.T. sealed by a waxed felt washer. Tracer No.13 is used with this shell.

1222. GRENADE, HAND, DRILL, NO.36M Mk.II (Fig.498)

Design of the abovementioned grenade has been approved. This new drill grenade consists of an empty grenade body with a length of 3/32 in. dia. steel wire fitted through the lugs to prevent the striker lever coming completely away from the body when the grenade is thrown.

The body of the grenade is painted white all over with "Mk.II" stencilled in black type on the outside of both lugs.

1223. MARKING OF SHELL - FUZED BASE PERCUSSION, NO.159, 270, 346 and 480.

Where shell are fitted with a base cover plate containing a setting plug, the base cover plate will be painted red and the setting plug will be left unpainted. This indicates that optional delay or non-delay action is obtainable.

Where shell are fitted with the older type of cover plate without a setting plug, the base cover plate will be painted blue. This indicates that the fuze will always give a delay action.

1224. CONTAINER, CARTRIDGE, NO.42, MK.III (for Q.F. 6 pr. 7 cwt.)

The above container, in waterproof board, to hold 1 round Q.F. 6 pr. 7 cwt. A.P. or A.P.C. Shot, has been approved. The tubular body is fitted internally at one end with a collar and end block to locate the projectile, the collar and block each being secured to the tube by adhesive and 4 nails.

External dimensions of the container are Length 16 ins. Dia. 3.75 ins. and it is stencilled on the outside with the following particulars:- No. and Mark; Contractor's initials or recognised trade mark; Year of manufacture.

1225. CONTAINER, AMMUNITION, M.L.4.2 in. MORTAR, NO. 253 Mk.I.

This container, in waterproof board, to hold 1 H.E. or Smoke round 4.2 in. Mortar, has been approved. The tubular body is fitted internally at one end with a collar to locate the nose of the bomb, the collar being secured to the tube by suitable adhesive and the end of the tube closed by a sheet metal cap.

The other end of the tube is closed by a sheet metal lid and the junction of lid and container sealed with adhesive tape.

Stowage dimensions are Length 21.35 in. Dia. 4.87 in. The container is stencilled on the outside with the following particulars: No. and Mark; Contractor's initials or recognised trade mark; Year of manufacture.

1226. CONTAINER, CARTRIDGE, NO.6, MK.III (for Q.F. 40 mm)

The above container, in waterproof board, has been approved. It is designed to hold 1 round Q.F. 40 mm. H.E.,A.P.,S.A.P., Practice or Practice projectile.

The tubular body is fitted internally at one end with a collar to locate the projectile, the collar being secured to the tube by suitable adhesive and 3 tacks, equi-spaced. The other end of the tube is provided with a steel collar, the edge of which is spun into the tube, the latter being cut away in two places to facilitate removal of cartridge.

External dimensions of the container are Length 17.75 in. Dia. 2.5 in. and it is stencilled on the outside with the following particulars:- No. and Mark; Contractor's initials or recognised trade mark; Year of manufacture.

1227. EJECTOR SHELL CONTENTS, NO.2 MK.I. MARKING.

The above store was originally given the provisional nomenclature "EJECTOR SHELL CONTENTS, MK.III" and a considerable number were stamped up "Mk.III" instead of the correct nomenclature "No.2 Mk.I". These ejectors were filled and passed into Service before the marking could be corrected although on the packages the correct nomenclature is shown.

Ejectors bearing the legend "Mk.III" are in fact "No.2 Mk.I" and are acceptable for Service.

1228. MINE, ANTI-PERSONNEL, NO.5, SEALING LABEL.

Reference Bulletin No.43, Item 1155 and Fig.460. The printed inscription on the sealing label has been amended to read as follows:- "REMOVE THIS TAB TO INSERT DETONATOR."

1229. GRENADE, HAND, NO.79, SMOKE MK.I. USE OF FUZE NO.247 MK.II.

Reference Bulletin No.32, Item 637 and Bulletin No.37, Item 905. Approval has been given for the use of the No.247 Mk.II fuze with the abovementioned grenade in substitution of the No.247 Mk.I fuze and for the omission of the quickmatch priming disc.

Details of the differences between the Mks.I & II.fuzes are given in Bulletin No.39, Item 964 and a drawing of the Mk.II fuze is shown in Bulletin No. 41, Fig.425.

1230. BOX, A.S.A. H.50. EXTENSION OF USE.

Approval has been given for the use of the abovementioned box to be extended to bulk pack Exploder, shell, "B" Mk.VIII.

1231. NOMENCLATURE - FUTURE POLICY AS REGARDS ALLOCATION OF. LAND SERVICE

The adoption of the undermentioned procedure as regards allocation of nomenclature for Land Service has been approved:-

(a) Arabic numerals will replace Roman numerals in designating Marks, e.g. "Mark XXIII" becomes "Mk.23". It will always be necessary to insert "MK" before the Arabic numeral.
As no change in nomenclature is involved, this system is being introduced forthwith in all future publications, correspondence etc., but amendment of existing documents and re-stamping of stores is unnecessary and will not take place. The change will be applied to existing stores of future manufacture as and when convenient to production authorities.

(b) Stars and Letters in conjunction with a Mark will not be employed in future, but minor changes will be indicated by an oblique stroke and numeral after the Mark, e.g.

First minor modification = Mk.1/1
Second " " = Mk.1/2

(c) Words, abbreviations and letters used to indicate a particular feature will be kept to a minimum and will be included in the descriptive part of the designation, and then only when necessary to distinguish the store for operational reasons, e.g.

(i) "T" indicating a tracer fitted to a projectile:-
Present System: Cartridge, Q.F. A.P.C. Mk.I T.
Future System: Cartridge, Q.F. A.P.C/T. Mk.I.

(ii) Present System: Shell, B.L., H.E. Mk.XIV D.
Future System: Shell, B.L., H.E. Mk.14.

(d) (i) The use of the letters A.B.C. or D. denoting the C.R.H. of a projectile or a complete round will cease.

(ii) The use of the word "FOIL" to indicate an agent for the prevention of coppering will cease.
Rounds for decoppering will continue to include "DEC" in the designation.

(iii) The use of the letter and figure indicating the type of Gaine used will be discontinued.

(iv) Use of letters to denote material, as for example with Tracer and Plugs, will not normally be used, being replaced by the oblique stroke and figure.

(v) The separate series for streamlined shell will no longer operate.

(e) Advance of Mark. The Mark of a store will be advanced consequent on any change in operational characteristic or on a major change of its design.
A major change of design will include an alteration of design which involves the use of different components or sub-assemblies not interchangeable with those of the existing Mark for equipments.

(f) Action on paras.(b) and (c) will not be retrospective but will only be applied to stores of future design.

1232. CENTRE OF GRAVITY MARKING. SUPER HEAVY AMMUNITION

Approval has been given for the marking of all projectiles for super heavy artillery equipments to indicate the position of the centre of gravity by means of the approved symbol, i.e. ⊖

1233. GRENADE, HAND, NO.79, SMOKE, MK.I. "OBSOLESCENT"

Reference Bulletin No.32, Item 637. Th abovementioned grenade has been declared "Obsolescent".

1234. KEY, NO.36M GRENADE, ALL PURPOSES, MK.I (Fig.499)

Design of the abovementioned Key has been approved. The Ke is of steel and details are shown in Fig.

1235. GRENADE, HAND, NO.77 MK.II. CHARGING HOLE PLUG

Reference Bulletin No.33, Item 699 and Fig.286. Provision has been made for a new type of charging hole plug for the above grenade. The new plug will be a parallel sided cylinder with one end closed with a spherical radius and, contrary to the old type, will be inserted with the open end into the filling hole and the closed end abutting the sealing cap.

This plug is generally known as the inverted type of filling hole plug.

1236. FUZE, PERCUSSION, BASE, NO.289. "OBSOLESCENT"

Approval has been given for the abovementioned fuze to be declared "Obsolescent" in favour of Fuze No.291.

1237. FUZES, PERCUSSION, D.A. No.244 and 257. TO BE FIRED WITH CAP ON.

Approval has been given for the abovementioned fuzes to be fired with the cap on. Future production of these fuzes will have the legend "FIRE WITH CAP ON" stamped on the top of the cap.

1238. P.I.A.T. AMMUNITION. MARKING OF LOT NO. ON PACKAGES.

In order to reduce the amount of stencilling on containers and boxes for P.I.A.T. ammunition the following system of marking, as regards lotting, is being adopted.

996 bombs will constitute a filled lot.

The Lot No. of the filled H.E. series will be the only one shown on the package. A Factory Record will show against each bomb Lot No. the fuze and cartridge Lot No's packed with them. Should the Lot No. of fuze and/or cartridge change during the filling of a single Lot of bombs, each such change will be indicated by adding a suffix letter (A.B.C.D.etc.,) to the main Lot No. Thus, the main Lot No., plus its suffix letter, if any, will identify the Lot No. of the H.E. bomb series, the Lot No. of the fuze and the Lot No. of the cartridge. By reference to the factory record it can be ascertained which fuze and cartridge Lots are associated with the H.E. bomb Lot.

Should the necessity arise to pack bombs of the same main Lot, but with differing suffix letters, in the same box, the Lot No. will be stencilled twice on the box, once with one suffix letter and once with the other.

Bombs of different main Lots will not be packed in the same box.

1239. DETONATOR, NO.27. PACKAGES

The following packages for the No.27 Detonator have been approved:-

Cylinder No.507 Mk.I Tinned plate, to hold 16 detonators.

Box No.508 Mk.I. Terne plate, with packing pieces, to pack 6 Cylinders No.507 (96 detonators).

Box G.70, Mk.I Steel, with packing pieces, to pack 8 Boxes No.508 (768 detonators).

Stowage dimensions of Box G.70 Mk.I are 19.15 x 8.35 x 7.85 inches.

1240. PACKAGES, AMMUNITION, SPECIAL MARKING TO FACILITATE IDENTIFICATION

Reference Bulletin No.43, Item 114. The following additions are made to the table of abbreviations given therein.

Nomenclature	Abbreviation
Nobels 808	808/- (to be followed by the diameter of the cartridge)
Nobels Plastic 808	808 PLAS - (to be followed by the diameter of the cartridge)
Ctges.S.A.Ball .303 Mk.VIIIZ Stripless Belts	303 BELT
Ctge. S.A. Ball .303 Mk.VII Stripless Belts	303 VII STRIP
Ctges. S.A. 20 m.m. Oerlikon SAP/HEI.	20 mm SAP HEI
Ctges. S.A. 20 mm. Oerlikon HEIT/SD	20 mm SDHEIT

1241. TRACER, SHELL, NO. 13 Mk.4 (Fig. 500)

Reference Bulletin No. 31, Item 618. Tracer, shell, No.13 Mk.4, for Land Service use with 6 pr. 10 cwt. gun ammunition, has been approved. It is filled Tracer Composition S.R.372A, with a priming of S.R.399. Method of closing is by the "jam washer" method (see Bulletin No. 41, Fig.417). Time of tracer is 6.5 secs. and colour Red.

1242. SHELL, Q.F. H.E. 3.7 in. HOW. - ALTERNATIVE FUZES.

Reference Bulletin No. 42, Item 1094. The undermentioned Method of Filling designs have been amended to show Fuzes No.117 and 119 as alternatives to Fuze No.106E for the above shell:-

DD(L) 9565
" 12479

1243. FUZES, PERCUSSION, D.A. NO's 151 and 152 "OBSOLESCENT"

The abovementioned fuzes have been declared "OBSOLESCENT"

1244. BOXES, A.S.A. H.50, H.51 and H.52.

Approval has been given to Boxes, A.S.A. H.50, H.51 and H.52 which have been known during development as the "S.A.A. Jungle Pack".

The Box H.50 is a metal non-watertight box which encloses two smaller plywood boxes known as the H.51. The H.51 in turn encloses a watertight metal liner which may be either the existing H.29 when packing belted .303" Vickers or 7.92 mm. Besa ammunition or the H.52 which is similar to the H.29 liner but has a single tear-off plate and no webbing carrying handle, when packing ammunition in cartons. The ammunition to be packed in these new types of package is as follows:-

9 mm.	Carton packed
.303"	" "
.303"	bandolier packed
.303"	M.G. belted

The machine gun ammunition package will go into universal use as soon as supplies are available. The cartons, also the chargers in the bandoliers, will be wrapped in moisture proof cellulose film to protect the ammunition against weather and short immersion in water after the lining has been opened.

The stowage dimensions are :-

H.50	H.51
Length 18"	Length 16.5"
Width 11"	Width 4.8"
Height 10.2"	Height 9.4"

SHOT AND SHELL, ARMOUR PIERCING AND PRACTICE TYPES.

1245. THE FOLLOWING TABLE, GIVING DETAILS OF ARMOUR PIERCING AND PRACTICE TYPES OF B.L. AND Q.F. SHOT AND SHELL, IS PUBLISHED FOR INFORMATION :—

(A) SHOT, Q.F.

CALIBRE.	M. OF F. DESIGN Nº	NATURE AND MARK	TRACER	REMARKS.
Q.F. 37 mm.	D.D.(L) 12205	SHOT, A.P. MK. II. T.	INTEGRAL TYPE WHITE	OBSOLESCENT.
	D.D.(L) 16632	SHOT, A.P. (S.V.) MK. II. BT.	Nº 21 (INTERNAL) RED.	
Q.F. 40 mm.	D.D.(L) 13074	SHOT, A.P. MK. II. T.	INTEGRAL TYPE WHITE.	OBSOLESCENT.
	D.D.(L) 14187	SHOT, A.P. MK. IV. T.	INTEGRAL TYPE WHITE.	
		SHOT. S.A.P. MK. IV. T.	—do—	
	D.D.(L) 14218	SHOT, PRACTICE, MK. VI. T.	INTEGRAL TYPE WHITE.	
	D.D.(L) 16147 A.	SHOT, A.P. MK. IV. T.	INTEGRAL TYPE RED.	
		SHOT, S.A.P. MK. IV. T.	—do—	
		SHOT, PRACTICE, MK. VI. T.	—do—	
Q.F. 75 mm.	D.D.(L) 12836	SHOT, S.A.P. MKS. V. T. OR VI. T.	INTEGRAL TYPE WHITE	NORTH AMERICAN PRODUCTION.

CALIBRE	M. OF F. DESIGN Nº	NATURE AND MARK.	TRACER	REMARKS.
Q F 75 mm (CONT'D)	D.D (L) 13074	SHOT, S.A.P. MK. IV. T.	INTEGRAL TYPE WHITE.	OBSOLESCENT.
	D.D.(L) 14187	SHOT, A.P. MK. I. T.	INTEGRAL TYPE. WHITE.	
		SHOT, S.A.P. MK. VI T.	—do—	
Q.F. 77 mm.	D.D.(L). 14187	SHOT, A.P. MK. III. T.	INTEGRAL TYPE WHITE	
		SHOT, A.P.C. MK. IV. T.	—do—	
	D.D.(L). 14218.	SHOT, PRACTICE, MKS. V. T. AND VI T.	INTEGRAL TYPE. WHITE	
		SHOT, PRACTICE, FLATHEADED MKS. III .T. AND IV. T.	—do—	
	D.D.(L) 16147.A.	SHOT, A.P. MK. III. T.	INTEGRAL TYPE. RED.	
		SHOT, A.P.C. MK. IV. T.	—do—	
		SHOT, PRACTICE, MKS. I. T, II. T. V. T. & VI. T.	—do—	
		SHOT, PRACTICE, FLATHEADED, MKS. I. T, III. T. AND IV. T.	—do—	
	D.D.(L) 16341.A.	SHOT, A.P. MK. VI. T.	INTEGRAL TYPE. RED.	
		SHOT, A.P.C. MK. VII .T.	—do—	
		SHOT, A.P.C.B.C. MK. VIII .T.	—do—	
		SHOT, PRACTICE, MKS. VIII .T, IX .T. AND XI.T.	—do—	
		SHOT, PRACTICE, FLATHEADED, MKS. VI.T. AND VII .T.	—do—	

CALIBRE	M. OF F. DESIGN Nº	NATURE AND MARK.	TRACER.	REMARKS.
Q.F. 77mm. (CONT'D.)	D.D.(L) 17228.	SHOT, A.P. MK. VI .T.	INTEGRAL TYPE WHITE.	
		SHOT, A.P.C. MK. VII .T.	— do —	
		SHOT, A.P.C. B.C. MK. VIII .T.	— do —	
		SHOT, PRACTICE, MKS. VIII .T. AND IX .T.	— do —	
		SHOT, PRACTICE, FLATHEADED, MKS. VI .T. AND VII. T.	— do —	
Q.F. 2.PR.	D.D. (L) 9512.	SHOT, A.P. MKS. I. T. AND II . T.	INTEGRAL TYPE WHITE.	OBSOLESCENT.
	D.D. (L) 10519.	SHOT, PRACTICE, MK. VII . T.	INTEGRAL TYPE. WHITE.	OBSOLESCENT.
		SHOT, PRACTICE, FLATHEADED MK. II. T.	do.	
	D.D. (L) 11583.	SHOT, A.P. MK. III . T.	INTEGRAL TYPE, WHITE.	OBSOLESCENT.
	D.D. (L) 12364.A.	SHOT, A.P. MKS. IV .T. AND VI .T.	INTEGRAL TYPE. WHITE	NORTH AMERICAN PRODUCTION.
	D.D. (L) 13074.	SHOT, A.P. MK. V. T.	INTEGRAL TYPE. WHITE.	OBSOLESCENT.
	D.D. (L) 13075.	SHOT, PRACTICE. MK. IX. T.	INTEGRAL TYPE. WHITE.	OBSOLESCENT.
		SHOT. PRACTICE, FLATHEADED. MK. III T.	do	

CALIBRE	M.OF F. DESIGN Nº	NATURE AND MARK.	TRACER.	REMARKS.
Q.F. 2 PR. (CONT'D.)	D.D.(L) 14187.	SHOT, A.P. MKS. VII T. AND VIII. T.	INTEGRAL TYPE WHITE	
		SHOT, A.P.C.B.C. MK. IX. B.T.	—do—	
	D.D.(L) 14218.	SHOT, PRACTICE. MKS. X T AND XIII. T.	INTEGRAL TYPE WHITE	
		SHOT, PRACTICE, FLATHEADED MKS. IX.T. AND VII T.	—do—	
	D.D.(L) 14493.	SHOT, A.P. MKS. IX.T. AND VI .T.	INTEGRAL TYPE WHITE	DIFFERS FROM D.D.(L) 12364.A. IN METHOD OF CLOSING TRACER CAVITY.
	D.D.(L) 16147.A.	SHOT, A.P. MKS. VII T AND VIII. T.	INTEGRAL TYPE RED	
		SHOT, A.P.C.B.C. MK. IX BT.	—do—	
		SHOT, PRACTICE, MKS. X T AND XIII T.	—do—	
		SHOT, PRACTIC, FLATHEADED MKS. IX.T. AND VII .T.	—do—	
	D.D.(L) 16632.	SHOT, A.P. (S.V.) MK. I. B.T.	Nº 21. (INTERNAL TYPE.) RED.	
Q.F. 6 PR. 6 CWT.	D.D.(L) 16341.A.	SHOT, A.P.C. MK. III. T	INTEGRAL TYPE RED	
		SHOT, PRACTICE, MK. II. T.	do	
	D.D.(L) 17228.	SHOT, A.P.C. MK. III. T.	INTEGRAL TYPE. WHITE	OBSOLESCENT
		SHOT, PRACTICE, MK II T.	do	
Q.F. 6 PR. 7 CWT.	D.D.(L) 10651	SHOT, A.P. MK. I. T.	INTEGRAL TYPE WHITE.	OBSOLESCENT

CALIBRE.	M. OF F. DESIGN Nº	NATURE AND MARK.	TRACER.	REMARKS.
Q.F. 6 PR. 7 CWT. (CONT'D.)	D.D.(L) 11263.	SHOT, PRACTICE, MK I T.	INTEGRAL TYPE WHITE.	OBSOLESCENT.
	D.D.(L) 12185.	SHOT, A.P. MK. II. T.	INTEGRAL TYPE WHITE.	OBSOLESCENT.
	D.D.(L) 12834.	SHOT, A.P. MK IV. T.	INTEGRAL TYPE WHITE.	N. AMERICAN PRODUCTION.
	D.D.(L) 13074.	SHOT, A.P. MK. III. T.	INTEGRAL TYPE WHITE.	OBSOLESCENT.
	D.D.(L) 13075.	SHOT, PRACTICE, MK. II. T.	INTEGRAL TYPE WHITE.	OBSOLESCENT.
		SHOT, PRACTICE, FLATHEADED, MK. I. T.	—do—	
	D.D.(L) 14187.	SHOT, A.P. MK. VII. T.	INTEGRAL TYPE WHITE.	
		SHOT, AP.C. MK. VIII. T.	—do—	
		SHOT, A.P.C.B.C. MK X. T.	—do—	
	D.D.(L) 14218.	SHOT, PRACTICE, MKS. V. T. AND VI. T.	INTEGRAL TYPE WHITE	
		SHOT, PRACTICE, FLATHEADED MK. III. T.	—do—	
	D.D.(L) 16147.A.	SHOT, A.P. MK. VII. T.	INTEGRAL TYPE RED	
		SHOT, A.P.C. MK. VIII. T.	—do—	
		SHOT, A.P.C.B.C. MK. X. T.	—do—	
		SHOT, PRACTICE, MKS. V. T. AND VI. T.	—do—	
		SHOT, PRACTICE, FLATHEADED MK. III. T.	—do—	

CALIBRE	M. OF F. DESIGN Nº	NATURE AND MARK.	TRACER.	REMARKS.
Q.F. 6 PR. 7 CWT. (CONT'D.)	D.D.(L) 16341 A.	SHOT, A.P. MK XIII. T.	INTEGRAL TYPE. RED.	
		SHOT, A.P.C. MK. XIV. T.	—do—	
		SHOT, A.P.C.B.C. MK. XV. T.	—do—	
		SHOT, PRACTICE, MK. IX. T.	—do—	
		SHOT, PRACTICE, FLATHEADED, MK. V. T.	—do—	
	D.D.(L) 17228.	SHOT, A.P. MK. XIII. T.	INTEGRAL TYPE. WHITE.	OBSOLESCENT.
		SHOT, A.P.C. MK. XIV. T.	—do—	
		SHOT, A.P.C.B.C. MK. XV. T.	—do—	
		SHOT, PRACTICE. MK. IX. T.	—do—	
		SHOT, PRACTICE, FLATHEADED, MK. V. T.	—do—	
	D.D.(L) 19753.	SHOT, A.P. (C.R.) MK. I. A.T.	Nº 22. (INTERNAL TYPE.)	
		SHOT, A.P. (D.S.) MK. I. B.T.	RED.	
Q.F. 17 PR.	D.D.(L) 13075.	SHOT, PRACTICE, MKS. III. T AND IV. T.	INTEGRAL TYPE. WHITE.	OBSOLESCENT.
		SHOT, PRACTICE, FLATHEADED, MK. II. T.	—do—	
	D.D.(L) 13314.	SHOT, PRACTICE, MKS. I. T AND II. T.	INTEGRAL TYPE. WHITE.	OBSOLESCENT.
		SHOT, PRACTICE, FLATHEADED, MK. I. T.	—do—	
	D.D.(L) 13401.	SHOT, A.P.C. MK. I. T.	INTEGRAL TYPE. WHITE.	OBSOLESCENT.

CALIBRE	M. OF F. DESIGN Nº	NATURE AND MARK.	TRACER.	REMARKS.
Q.F. 17 PR. CONT'D.	D.D (L) 14187	SHOT, A.P. MK. III .T. SHOT, A.P.C. MK. IV T.	INTEGRAL TYPE. WHITE	
	D.D.(L) 14218	SHOT, PRACTICE, MKS. V .T AND VI. T SHOT, PRACTICE, FLATHEADED, MKS. III. T. AND IV. T.	INTEGRAL TYPE WHITE	
	D.D.(L) 16147 A.	SHOT, A.P. MK. III T. SHOT, A.P.C. MK. IV T. SHOT, PRACTICE MKS. I.T, II.T, V.T. AND VI.T. SHOT, PRACTICE, FLATHEADED, MKS. I.T, III. T. AND IV.T.	INTEGRAL TYPE RED. —do— —do— —do—	
	D.D.(L) 16341.A.	SHOT, A.P. MK. VI .T. SHOT, A.P.C. MK. VII .T. SHOT, A.P.C.B.C. MK. VIII T. SHOT, PRACTICE, MKS. VIII T, IX .T. AND XI. T. SHOT, PRACTICE, FLATHEADED, MKS. VI. T. AND VII T.	INTEGRAL TYPE RED —do— —do— —do— —do—	
	D.D.(L) 17223	SHOT, A.P. MK. VI. T. SHOT, A.P.C. MK. VII. T. SHOT, A.P.C.B.C. MK. VIII. T. SHOT, PRACTICE MKS. VIII T AND IX .T. SHOT, PRACTICE, FLATHEADED MKS. VI T. AND VII T.	INTEGRAL TYPE WHITE —do— —do— —do— —do—	OBSOLESCENT.

CALIBRE.	M. OF F. DESIGN Nº	NATURE AND MARK.	TRACER.	REMARKS.
Q.F. 25 PR.	D.D.(L) 13074.	SHOT, A.P. MK. III .T.	INTEGRAL TYPE WHITE.	OBSOLESCENT.
	D.D.(L) 13075.	SHOT, PRACTICE, MK. III T.	INTEGRAL TYPE WHITE.	OBSOLESCENT.
	D.D.(L) 14187.	SHOT, A.P. MK. VI .T.	INTEGRAL TYPE WHITE.	
		SHOT, A.P.C. MK. VII. T.	— do —	
	D.D.(L) 14218.	SHOT, PRACTICE, MK. V.T.	INTEGRAL TYPE WHITE.	
	D.D.(L) 16147.A.	SHOT, PRACTICE, MK. V. T.	INTEGRAL TYPE RED.	
	D.D.(L) 16341.A.	SHOT, A.P. MK. VIII. T.	INTEGRAL TYPE RED.	
		SHOT, PRACTICE, MK. VIII. T.	— do —	
	D.D.(L) 17228.	SHOT, A.P. MK. VIII .T.	INTEGRAL TYPE WHITE.	OBSOLESCENT.
		SHOT, PRACTICE, MK. VIII . T.	— do —	
Q.F. 3 IN. 20 CWT.	D.D.(L) 13074.	SHOT, A.P. MK. II . T.	INTEGRAL TYPE WHITE.	OBSOLESCENT
		SHOT, S.A.P. MK. I. T.	— do —	
	D.D.(L) 14187.	SHOT, A.P. MK. III . T.	INTEGRAL TYPE WHITE	
		SHOT, S.A.P. MK. II . T.		

CALIBRE	M. OF F. DESIGN N°	NATURE AND MARK.	TRACER.	REMARKS.
Q.F. 3·7IN. GUN.	D.D.(L) 13074.	SHOT. A.P. MK. II T.	INTEGRAL TYPE WHITE.	OBSOLESCENT.
		SHOT, S.A.P. MK. I .T.	—do—	
	D.D.(L) 14187.	SHOT, A.P. MK. III .T.	INTEGRAL TYPE. WHITE.	
		SHOT, S.A.P. MK. II . T.	—do—	
	D D.(L) 14218.	SHOT, PRACTICE, MKS. I.T. AND II.T.	INTEGRAL TYPE. WHITE.	
	D.D. (L) 16147.A.	SHOT, A.P. MK. III .T.	INTEGRAL TYPE. RED	
		SHOT, S.A.P. MK. II .T.	—do—	
		SHOT, PRACTICE, MKS. I.T. AND II.T.	—do—	
	D.D. (L) 16341 A.	SHOT, A.P. MK. V. T.	INTEGRAL TYPE. RED.	
		SHOT, S.A.P. MK. IV .T.	—do—	
		SHOT, PRACTICE, MKS. III .T. AND IV. T.	—do—	
	D.D. (L) 17228.	SHOT, A.P. MK. V. T.	INTEGRAL TYPE WHITE	OBSOLESCENT.
		SHOT, S.A.P. MK. IV .T.	—do—	
		SHOT, PRACTICE, MKS. III .T. AND IV . T.	—do—	

(B) SHELL, B.L.

CALIBRE	M.OF F. DESIGN Nº	NATURE	FILLING	EXPLODER	DEPTH OF CAVITY.	FUZE	REMARKS.
L. 6.IN. GUN.	R.L. 25562	A.P.C. MK. VII	LYDDITE	4 OZ. PICRIC POWDER	5·9 IN.	Nº 16.	
	D.D.(L) 5453. (TYPICAL)	C.P.B.C.	T.N.T./B.W.X.	(2) 2¾ OZ. T.N.T. PELLETS.	5·65 IN.	Nº 480.	
	METHOD OF CONVERTED FILLING D.D.(L) 9052	A.P.C. MK. VII		3¼ OZ. PICRIC ACID.		Nº 480.	
L. 9·2 IN. & 6 IN. GUNS.	R.L. 28863.	A.P.C.	SHELLITE 70/30	4 OZ. PICRIC POWDER.	5·9 IN.	Nº 16 OR 16 D.	
L. 9·2 IN. GUN.	D.D.(L) 6269	A.P.C.	T.N.T./B.W.X.	(2) 2¾ OZ. T.N.T. PELLETS.	6·2 IN.	Nº 346.	
	D.D.(L) 17776	A.P.C. MKS. VII A AND IX A.	T.N.T/B.W.X.	(2) 2¾ OZ. T.N.T. PELLETS.	6·2 IN.	Nº 346.	
	METHOD OF CONVERTED FILLING D.D.(L) 9052.	A.P.C. MKS. VII AND IX A.		3¼ OZ PICRIC ACID.		Nº 340.	
L. 12.IN. HOW.	D.D.(L) 17196	*C.P. MK. II.	T.N.T. SHELLITE.	3¼ OZ. C.E. PELLET. 3½ OZ. PICRIC ACID PELLET.	5·86 IN.	Nº 270.	*NOMENCLATURE NOW AMENDED TO READ "SHELL, B.L. ANTI-CONCRETE 12 IN. HOW. MK. I"
L. 15.IN. GUN.	D.D.(L) 7935	A.P.C. MK. XVII B.	SHELLITE.	3¼ OZ. PICRIC ACID.	5·86 IN.	Nº 159.	
L. 18. IN. HOW.	D.D.(L) 11184	C.P.B.C. S/L MK. I. D.	AMATOL 50/50	(2) 2¾ OZ. T.N.T. PELLETS.	5·65 IN.	Nº 270.	
	D.D.(L) 17196	*C.P. S/L. MK. II. D.	T.N.T. SHELLITE	3¼ OZ. C.E. PELLET. 3¼ OZ. PICRIC ACID PELLET.	5·86 IN.	Nº 270.	*NOMENCLATURE NOW AMENDED TO READ "SHELL, B.L. ANTI-CONCRETE, STREAMLINE, 18 IN. HOW. MK. I. D"

(C) SHELL, Q.F.

CALIBRE	M.OF F. DESIGN Nº	NATURE	FILLING.	EXPLODER	DEPTH OF CAVITY.	FUZE	REMARKS.
Q.F. 2 PR.	D.D.(L) 7141	A.P.	LYDDITE	2¼ dr. PICRIC POWDER.	2·04 IN.	TRACER FUZE Nº 281.	OBSOLESCENT.
Q.F. 4·5 IN. GUN.	D.D.(L) 10503	S.A.P. MK. I. C. „ MK. III C.N.T „ MK. IV C.	T.N.T.	14 dr. C.E. PELLET OR 14 dr. T.N.T. PELLET.	4·94 IN.	Nº 501	
	D.D.(L) 15475.	S.A.P. MK V.C.	T.N.T. / B.W.X.	14 dr. C.E. PELLET	4·94 IN.	Nº 501	OBSOLESCENT.
	D.D.(L) 17504	S.A.P. MK. V. C.	T.N.T. / B.W.X.	14 dr. C.E. PELLET.	4·94 IN.	Nº 501 OR 502	OBSOLESCENT WITH FUZE Nº 501.
Q.F. 4·7 IN. GUN.	D.D.(L) 4578.A.	S.A.P. MK. III.	T.N.T.	14 dr. T.N.T. PELLET	4·94 IN.	Nº 501	OBSOLESCENT.
	D.D.(L) 17504	S.A.P. MK III	T.N.T	14 dr. T.N.T. PELLET	4·94 IN.	Nº 501	
	METHOD OF CONVERSION OF FILLING D.D.(L) 4339	S.A.P. MKS. I AND II	LYDDITE.	12 dr. p. POWDER 2¾ dr. OR 3 dr. p. POWDER.		Nº 500.	
Q.F. 5·25 IN. GUN.	D.D.(L) 13892	S.A.P. MK II C.N.T „ MK IV C.T.	T.N.T.	14 dr. C.E. PELLET.	4·94 IN.	Nº 501	OBSOLESCENT.
	D.D.(L) 17504	S.A.P. MK. II C.N.T. S.A.P. MK. IV. C.T.	T.N.T. T.N.T. / B.W.X.	14 dr. C.E. PELLET. 14 dr. C.E. PELLET.	4·94 IN. 4·94 IN.	Nº 501 OR 502 Nº 502.	OBSOLESCENT WITH FUZE Nº 501.

ENEMY AMMUNITION

1246. GERMAN CARTRIDGE Q.F. 7.5 cm. Pak 40 HOLLOW CHARGE (7.5 cm Gr Patr 38 Hl/B) (Fig. 501)

This round is of the fixed Q.F. type and is fired from the 7.5 cm anti-tank gun model 40. The overall length of the complete round is 38 inches and it weighs approximately 17 lb. 6 oz. The shell body and cap is painted deep olive and stencilled in black, except the stencilling FES which is in white.

The complete round consists of the following components.

Shell Hollow charge filled cyclonite/wax (95/5)
Fuze AZ 38
Gaine Zdlg 40B
Propellant charge of double base composition with igniter and flash reducer.
Case of steel coated with brass model 6340 St
Primer percussion C/12 nA. St.

SHELL, FUZE AND GAINE

The filled shell and AZ 38 fuze are similar to that of the 7.5 cm L.G.40 Hollow Charge shell, described in Bulletin No. 33 Item 746 and illustrated in Fig.310. The gaine is described in Bulletin No.43, Item 1160. The stencilling "FES" denotes that the driving band is of the sintered iron type containing, (after the removal of the waxy material with which it was impregnated) carbon 0.06 per cent, silicon 0.02 per cent, manganese 0.21 per cent.

PROPELLANT CHARGE

The propellant charge is of the Gudol type in the form of square flakes, weighing approximately 14 oz. 13 dr. with a centre tube of Digl weighing approximately 2 oz. 2 dr. The mean size of the flakes is 0.156" x 0.156" x 0.22" and the external and internal diameter of the tube 0.55 inch and 0.47 inch respectively. The charge is contained in a knitted viscose rayon bag with an igniter sewn to the base. The bag is marked, in red "Auch für Tropen" and in black 7.5 cm Pak 40, 490 g. Gu. Bl.P - AO - (4.4.0,6)

The igniter consists of 40 grams Nz Man NP (1,5 - 1,5) in the form of chopped cord.

The compositions, as found by analysis, are as follows:-

Composition	Propellant per cent.	Central Stick per cent	Igniter per cent
Nitrocellulose	34.50	63.62	92.29
Nitroguanidine	30.27	-	-
Diethylene-glycol-dinitrate	34.17	32.33	5.73
Diphenylamine	-	0.23	0.45
Ethyl centralite	-	-	-
Sodium sulphate	0.62	-	-
Potassium sulphate	-	3.52	0.33
Graphite	0.44	0.30	1.20
Total	100.00	100.00	100.00

The flash reducer consists of 20 grams of potassium sulphate and is contained in a separate bag of knitted cellulosic material. The bag is stencilled 20g. K_2SO_4.

CASE

The case is of steel, coated with brass, and is 28.1 inches in length. The base is stamped with the model number "6340 St." 7.5 cm Pak 40" and stencilled in white "FES". Details of the charge as marked on the cartridge bag are stencilled on the case.

PRIMER

The percussion primer C/12 nA is described in Bulletin No.26, Item 460. The letters "St" added to the designation indicate that the primer is of steel.

1247. GERMAN 7.5 cm. PAK 41 CARTRIDGE Q.F. A.P.B.C./T. SHOT
(Patr. Pzgr. 41 H.K.)
(Figs 502 and 503)

This Q.F. fixed round is used in the 7.5 cm. anti tank gun model 41. The overall length of the round is 28.8 inches and the weight 17 lb. 2 ozs. The exterior of the shell, except the skirts is painted grey green on an undercoat of red. The edges and forward faces of the skirts appear to be treated with a graphitic coating, possibly to function as a lubricant.

The complete round consists of the following components.

A.P.B.C. shot with tungsten carbide core and tracer
Case stamped with the model number 6344.
Propellant charge of double base composition with igniter
Primer percussion C/12 nA.St.

SHOT (Fig. 503)

The total weight of the shot is 5 lb. 11¼ oz. It consists of a soft iron or steel body, a tungsten carbide core, and a ballistic cap with black plastic material between the cap and the core.

The body is in one piece with two collapsible skirts. The rear skirt is cannelured for the attachment of the case, and the forward skirt has 10 equidistant holes in it, each approximately 0.25 inch in diameter. Immediately in rear of the forward skirt the body is reduced in diameter. The body is bored centrally in two diameters to receive the core and tracer respectively and provided with a central hole for the escape of air when assembling the core. The hardness of the body is 90 to 110 V.D.H. with the exception of the tip at the forward end where, probably due to cold work, the hardness increased to 140/150 V.D.H. The density is 7.81 gm. per c.c.

The tungsten carbide core weighs 2 lb. and its density is 15.27 gm. per c.c. The core is coated with white paint before assembly, apparently to ensure a tight fit when pressed into the body. The nose of the core is embedded in a black plastic material which fills the space between the nose and the ballistic cap.

The steel ballistic cap is secured by turning the forward end of the body over its base to form a cannelure. Two holes are provided for the escape of the excess plastic during this operation.

TRACER

The tracer weighs 9½ drams. The body is of steel and is screw-threaded for insertion in the shot. The tracer composition is contained in a brass plated steel cup secured by turning over the lip of the body.

PROPELLANT CHARGE

The propellant charge weighs approximately 5 lb. 11 oz. and consists of tubular sticks of Digl. type in two lengths, 16.55 inches and 18.5 inches long respectively. The longer sticks weighing approx. 4 lb. 6½ oz. are contained in a white stocking bag tied at the top, the shorter sticks surround the bag and are not tied. The stocking is in two parts, stitched in the middle, and an igniter is sewn at one end. The stocking is centred by one or two cardboard washers, approximately 2 inches in internal diameter, at the top of the case.

The stocking examined was marked in black

7.5 cm. Pak 41
2580 Kg.
Digl. RP - G 1,5 $\left(\frac{420}{490}\right)$ 2,5/1
dgb 1944/2
Bg. 8. 5. 43 E.

CASE

The case is of steel, coated with brass, and is 21.4 inches in length. The base is stamped "7.5 cm. Patrh (6344) Pak 41", and stencilled in white "Pagr 41. H.K." The case examined was not stamped "St" as is usual with German steel cases. The details of the charge as marked on the bag are stencilled on the case.

PRIMER

The percussion primer C/12 nA. is described in Bulletin No.26 Item 460. The letters "St" added to the designation indicate that the primer is of steel.

1248. GERMAN 7.5 cm. PAK 41 CARTRIDGE Q.F. A.P.B.C/T. SHOT (Patr. Pzgr. 41 W.) (Figs 504 and 505)

This Q.F. fixed round is used in the 7.5 cm. anti-tank gun model 41. The overall length of the round is 30 inches, and it weighs approximately 17 lb. The exterior of the shell including the ballistic cap is painted black, except the edges and forward faces of the skirts which appeared to be coated with a graphitic lubricant. The letter W is stencilled in white on the shot body.

The complete round consists of the following components:

A.P.B.C. Shot with tracer
Case stamped with the model number 6344
Propellant charge of double base composition with igniter
Primer percussion C/12 nA St.

SHOT (Fig. 505)

The total weight of the shot is 5 lb. 7½ oz. It consists of a solid soft steel shot with two skirts, tracer and ballistic cap. The skirts are integral with the shot. The rear skirt is cannelured circumferentially for the attachment of the case, and the base is bored centrally and screwthreaded internally to receive the tracer. Six equidistant holes approx. 0.24 inch in diameter are bored through the forward skirt. The hardness of the body is almost uniform between 90 and 110 V.D.H. The steel ballistic cap is attached to the shot by two rows of spot welds. The space between the nose of the shot and the ballistic cap is void.

The tracer is similar to that described in the Patr. Pzgr. 41 H.K. round.

PROPELLANT CHARGE CASE AND PRIMER

The propellant charge is similar to that described in the Patr. pzgr. 41 H.K. round, excepting the diameter of the sticks and the weight of the short ones. The long sticks weighed 2000 grams and the short ones 666 grams.

The stocking bag is marked in black.

7.5 cm. Pak 41
2670 g.
Digl. RP - G 1,5 $\left(\frac{420}{490} - 2,7/1\right)$
Ktz 1942/8
Bg. 8. 3. 43E

The case and primer is the same as that described in the Patr. Pzgr. 41. H.K. round. The base of the case is stencilled in white "Pzgr. 41 W".

1249. GERMAN CARTRIDGE Q.F. 7.62 cm Pak 36 A.P.B.C./T. SHOT WITH T.C.CORE (7.62 cm Panzergranat - Patrone 40)

This cartridge is used with the 7.62 cm Pak 36 anti-tank gun. The overall length of the complete round is approximately 36.7 inches and it weighs 19 lb. 9½ oz. The shot is painted black and stencilled in red except the white letters "KPS" denoting that the driving band is iron covered with copper. The cartridge case is stamped in the base "6340 St. 7.5 Pak 40" and apparently is a converted case. The complete round for the 7.62 Pak 36 may however be readily identified by the white tip 1.58 inches long on the ballistic cap. The fixed Q.F. Cartridge consists of the following components:-

A.P.B.C. Shot with T.C.Core
Tracer
Brass Case or steel case coated with brass
Propellant charge
Percussion primer C/12 nA.St.

SHOT (Panzergranate 40) (Fig. 506)

The Shot with its ballistic cap is 9.45 inches in length and, without tracer, weighs 8 lb. 10 oz. The steel body is a machined forging, and that portion of the cavity surface forming a housing for the plastic is coarsely machined probably to make a good bond with the plastic. It is screwthreaded in the base to receive a core holder and externally at the shoulder to receive a ring adapter securing the ballistic cap. The base is recessed to form a cannelure when the core holder is assembled.

The single driving band is of soft iron with a coating of copper. A cannelure for the attachment of the case is formed in rear of the driving band.

The core holder is of steel, and is bored centrally in two diameters to form a diaphragm separating two recesses. The forward recess receives the tungsten carbide core whilst that in the base is screwthreaded to receive the tracer. The diaphragm is bored centrally to allow the air to escape when the core is inserted. Externally, at the forward end, the holder is tapered and roughly machined similar to the cavity surface of the shell body and presumably for the same purpose.

The tungsten carbide core weighs 1.99 lb.

The head of the core and its holder are surrounded by moulded plastic which fills the space between the body and these components. The plastic has an ogival head of low crh under the ballistic cap.

A reinforcing washer, stamped from cold rolled mild steel strip, approximately 0.12 inches thick, is inserted in the plastic to seat on the forward end of the core holder and surround the core at about its shoulder.

The ballistic cap is pressed from mild steel sheet and is crimped into a cannelure in a mild steel adapting ring which screws on to the shoulder of the shell body.

TRACER

The tracer is described as a separate item in this bulletin.

CARTRIDGE CASE

The case is of steel coated with brass and is 28.1 inches in length. The base is stamped with the model number "6340 St." This model number is also stamped on the 7.5 cm Pak 40 cases which are only 26.2 inches in length.

PROPELLANT CHARGE AND IGNITER

The propellant charge weighs approximately 4 lb. 9 oz. and consists of grey tubular Gudol sticks 24.5 inches in length with a mean internal and external diameter of 0.193 inches and 0.076 inches respectively. An analysis of the propellant shows it consists of nitrocellulose 36.48 per cent, diethylene-glycol-dinitrate 28.20 per cent, nitroguanidine 34.05 per cent, potassium sulphate 1.16 per cent and graphite 0.11 per cent. It is contained in a knitted fabric bag with an igniter in a stitched pocket at one end. The bag is stencilled in red "Fur Tropen" and in black "7.62 cm. Pak. 36 2,070 Kg. Gu.R.P. A0,5 - (625 . 5/2)."

The igniter consists of 20 grams of Nz. Man.NP. in the form of chopped cord. It consists of nitrocellulose 86.67 per cent diethylene-glycol-dinitrate 9.53 per cent, diphenylamine 0.42 per cent, ethyl centralite 0.83 per cent, graphite 0.70 per cent, potassium sulphate 0.25 per cent, and camphor 1.60 per cent.

A flash reducer consisting of 1 oz. 2 dr. of potassium sulphate in a ring shaped fabric bag is added to the charge.

PRIMER

The primer C/12 nA is described in Bulletin No.26 Item 460 and illustrated in Fig.159.

1250. GERMAN CARTRIDGE Q.F. 7.62 cm. Pak 36 A.P.C.B.C./T
(7.62 Panzergranat - Patrone 39)
(Fig. 507)

The cartridge is used in the 7.62 cm.Pak 36 anti-tank gun. The overall length of the complete round is approximately 39.2 inches, and it weighs 28 lb. 4 oz. The shell is painted black and stencilled in red, and also has a red band painted immediately in front of the driving band. A white tip 1.58 inches long on the ballistic cap readily distinguishes the round from that used in the 7.5 cm. Pak 40 gun which fires a round with a cartridge case bearing a similar case model number stamped in the base. The case is stamped "6340 St. Pak 44 Rh."

The fixed Q.F. cartridge consists of the following components:-

Shell A.P.C.B.C.
Base fuze Bd Z 5103^{X} with tracer
Brass case or steel case coated with brass
Propellant charge
Percussion primer C/12 nA.St.

SHELL. (Fig.507)

The filled shell with fuze and tracer weighs 16 lb. The bursting charge consists of 9½ drams of cyclonite wax 90/10. The single driving band is of the copper-iron type. The piercing cap is soldered to the ogival part of the body, and the ballistic cap, approximately 0.06 inches thick, is attached to the penetrative cap by a circumferential deposit of weld metal, the excess of which is removed by grinding.

FUZE, GAINE AND TRACER

The base fuze Bd. Z 5103^{X} with gaine is described in Bulletin No.25 Item 435, which includes an illustration in Fig. 152.

The tracer is described as a separate item in this bulletin.

CARTRIDGE CASE

The case is similar to that of the APBC/T Shot round described in this bulletin, except that the base of the round examined was stamped "6340 St. Pak 44 Rh" and apparently it was intended originally for a Pak 44 equipment. The case is stencilled in red "Fur Tropen, P.T. + 25°C" and, in black, particulars of the propellant charge identical to that stencilled on the bag containing the propellant charge.

PROPELLANT CHARGE AND IGNITER

The propellant charge weighs approximately 5 lb. 7 oz. 7½ dr, and consists of dark tubular sticks of Digl. type 24.3 inches in length, with a mean external and internal diameter of 0.175 inches and 0.056 inches respectively. An analysis of the propellant shows it consisted of nitrocellulose 63.44 per cent, diethylene-glycol-dinitrate 25.79 per cent, ethyl centralite 9.60 per cent, potassium sulphate 0.91 per cent and graphite 0.26 per cent. The charge is wholly contained in a knitted fabric bag with an igniter in a stitched pocket at one end. The bag is stencilled in red "Fur Tropen" and in black 7.62 cm. Pak. 36. 2,480 Kg. Digl. R.P. G-0 (625 - 3,8/1,3)

The igniter consists of 20 grams of Nz.Man.NP in the form of chopped cord. An analysis shows it consists of nitrocellulose 92.06 per cent, diethylene-glycol-dinitrate 7.10 per cent and diphenylamine 0.84 per cent.

PRIMER

The primer C/12 nA. is similar to that described in Bulletin No.26, Item 460 and illustrated in Fig.159, excepting the cap composition which consists of barium nitrate 50.9 per cent, lead styphnate 22.2 per cent, antimony sulphide 7.2 per cent and calcium silicide 19.7 per cent and possibly a very small quantity of tetrazene as a sensitising agent. The weight of the composition is 0.44 grains.

1251. TRACER FROM GERMAN 7.62 Pak. 36 APCBC/T SHELL
(Fig. 508)

The tracer weighs 10½ drams and consists of a steel tubular body, brass tubular liner, tracer and priming compositions, steel closing disc, metal foil disc, and a metal washer. The steel components are rust proofed.

The body has an overall length of 0.94 inches and a maximum diameter of 0.59 inches, and is screwthreaded for insertion in the base of fuze Bd.Z.5103*.

The tracer composition is grey in colour and weighs approximately 34 grains. It consists of barium nitrate 63.4 per cent, magnesium metal 31.5 per cent and resinous matter 5.1 per cent. The composition is pressed with a spigoted drift into the brass liner before insertion in the tracer body from the front.

The front of the tracer is closed by turning the end of the body over the chamfered periphery of the steel disc and sealed by a thin coating of black paint.

The priming composition is grey in colour and weighs approximately 21.6 grains. It consists of barium peroxide 79.3 per cent, magnesium metal 19.5 per cent, barium nitrate 1.2 per cent. The composition is pressed into the body from the rear by a serrated drift after the liner with tracer composition has been inserted. The rear of the tracer is closed by a metal foil disc held by pressing a metal washer into an undercut recess.

1252. TRACER FROM GERMAN 7.62 cm. Pak 36 APCBC/T. SHOT WITH TUNGSTEN CARBIDE CORE.
(Fig. 509)

The tracer weighs 3 oz. 5 dr. and consists of a steel tubular body, steel cup shaped liner filled with tracer and priming compositions, steel disc and a celluloid closing disc. All steel components are rust proofed.

The body has an overall length of 1.41 inches and a maximum diameter of 1.02 inches. It is screwthreaded for insertion in the base of the projectile.

The grey coloured tracer composition weighs 157 grains and consists of barium nitrate 50.4 per cent, magnesium metal 31.1 per cent, sodium oxalate 8.0 per cent, strontium nitrate 3.5 per cent resinous matter 7.0 per cent. The grey priming composition, with brown substance at one end weighs 37 grains and consists of barium peroxide 76.5 per cent, magnesium metal 13.4 per cent, barium nitrate 4.6 per cent and resinous matter 5.5 per cent. The tracer and priming compositions are pressed into the liner in separate increments by a convex serrated drift before being inserted in the body from the front.

The front of the body is closed by turning its mouth over the chamfered periphery of the steel disc.

The rear of the body is closed by a thin yellow opaque celluloid disc let into an undercut recess.

1253. GERMAN HOLLOW CHARGE ANTI-TANK HAND GRENADE
(Panzer Wurfmine (L))
(Fig. 510)

This is a hollow charge anti-tank hand grenade stabilized in flight by four fabric fins. The fins are held close to the handle, but open out immediately the grenade is thrown. The overall length of the grenade is 20.9 inches and its maximum diameter 4.2 inches. The grenade examined was deficient of the gaine and in this condition

weighed 3 lb. 1 oz. The grenade body is painted buff colour and stencilled "PWM1(L)" in black; the handle is unpainted. The top of the fuze cover is stamped "Kappenicht z Tragen benutzen" and painted red.

The grenade consists of the following principal parts:-

Grenade body filled cyclonite/wax 50/50
Wood handle filled PETN/Wax 90/10
Four fabric fins
Fuze
Gaine

The grenade body is a thin steel cone tapering to a tubular opening 1.18 inches in diameter to receive the end of a wooden handle, whilst the other end is closed by a thin hemispherical outer casing forming the head. The cone and head are secured together by turning the cone opening over a flange in the hemispherical head. The head is strengthened by an inner liner in the form of a thin hemispherical segment cut so that only the outer casing covers the impact area of the head.

The cone portion of the body contains the main bursting charge consisting of approximately 18.5 ozs. of cast cyclonite wax 50/50, and a thin flanged cavity liner. The liner is of pressed steel 0.069 inches thick shaped to form a 30 degree cone 2.4 inches in length, with a base of 1.57 inches which opens into a hemispherical recess 2.8 inches in diameter. The detonative impulse from the fuze is transmitted to the bursting charge through an explosive filling carried in the wooden handle.

The tubular handle is made from beech wood and is approximately 11.75 inches in length; it contains six pellets of PETN/Wax 90/10, each weighing approximately 7 drams. The end pellets are secured by nitrocellulose varnish and are in contact with the bursting charge and gaine respectively. The forward end of the handle is enclosed in a metal collar which fits into the tubular opening at the base of the grenade body; it is secured by two screws. The rear end of the handle is increased in diameter both internally and externally to form a cavity to accommodate a gaine, and is encased in a metal tube forming part of the fuze holder.

Four steel spring ribs are secured equidistant around the handle, and each carry a triangular stabilizing fin made from textile material. The ends of the ribs are housed in grooves in the forward end of the handle and are secured by the metal collar.

The fins are made of either white or red dyed twill woven viscose rayon and are tacked along the handle opposite its rib. The long edge of the material is turned over the rib and stitched with cotton. A semicircular metal collar fitted with a pin, is attached by a length of string to the free end of one rib. The collar secures the tape of the fuze safety pin and prevents the latter falling out before the grenade is thrown.

The fuze holder consists of a tube with two thin sheet metal cones attached to one end. One is inserted in the tube apex first, and the other closes the end of the tube. The fuze is held longitudinally between the apexes of the cones. Both cones are perforated at their apexes, one to form a flash hole between the fuze detonator and the gaine, and the other for the insertion of the fuze safety pin. A metal tongue attached to the side of the tube secures a safety cover.

The metal safety cover protects the fuze assembly and retains the spring ribs and fins close to the handle during transport. The cover consists of an inner cap inside a larger cap, the former fits closely over the top cone of the fuze holder, and the latter covers the end of the ribs. The inner cap appears to be spot welded to the larger cap. The cover is held by the metal tongue attached to the fuze holder, which passes through a slit in the top of the cover and is bent over to secure it.

The fuze consists mainly of a body, detonator holder, detonator, striker, safety pin 2 balls, spring, needle.

The body is a steel tube 0.6 inches long, and accommodates the striker; it is screwthreaded externally at the forward end for the attachment of a cup shaped non-ferrous detonator holder. The base of the holder is perforated to form a flash hole.

The igniferous detonator is a thin cup shaped aluminium body 0.24 inches in diameter and 0.12 inches high with a flash hole in the base closed by a thin aluminium disc. It is filled with two compositions, approximately equal in weight and volume. That in the base is a yellow green composition consisting of lead styphnate and barium nitrate 84 per cent, calcium silicide 12 per cent and organic matter 4 per cent; above this is a purple brown composition consisting of lead peroxide 50 per cent and calcium silicide 50 per cent. The detonator is closed by a tinfoil disc lacquered green, and is inserted upside down in the holder. Above the detonator are three steel washers under a paper washer.

The cylindrical striker is a sliding fit in the fuze body and is provided with a mushroom head and coned end to hold the needle; it is bored, centrally to receive the safety pin with a length of tape attached and, near the head, radially to partially accommodate two steel safety balls.

The safety pin thrusts the balls outwards to foul the fuze body and prevent the forward movement of the striker thereby holding the needle off the detonator. During transport the tape is secured under a metal collar attached by string to one of the spring ribs. When the grenade is thrown, the drag of the tape withdraws the safety pin.

The weak helical spring surrounds the fuze body and is held in compression between a step on the underside of the striker head and the detonator holder.

The short steel needle is provided with a sharp pyramidal point and small shank, it is held in the striker by burring the coned end of the striker around its small shank.

Details of the gaine are not yet available.

PENETRATION OF ARMOUR PLATE

It is estimated that the grenade will penetrate 80 mm. of homogeneous plate (I.T.80) at normal.

ACTION

The safety cover is removed and immediately the bomb is thrown the fins open out and the metal collar releases the tape of the fuze safety pin. The drag on the tape withdraws the safety pin thereby releasing the two steel balls. The needle is held off the detonator by the striker spring. On impact the striker compresses the spring and impinges the needle on the detonator. The flash from the detonator detonates the gaine which in turn detonates the filling in the handle and the grenade.

1254. GERMAN 32 cm INCENDIARY ROCKET
Wurfkorper M. Fl.50
(Fig. 511 and 512)

This is a self propelled base venting rocket projectile filled with a mixture of petrol and oil. The venturis are inclined to the axis of the projectile causing rotation and stability in flight. It is fired electrically from either a six barrel two wheel mobile projector (28/32 Nebelwerfer 41) or from its own transporting case which serves as a projector. In the latter case, four crates are laid on a simple wooden ramp (schweres wurfgerat 40) or a metal ramp (schweres wurfgerat 41) or six crates are mounted on an armoured personnel carrier (Sd.Kfz 251).

The overall length of the complete round is 4 ft. 2 inches and its total weight 174 lb. External markings on the round are shown in Fig. 511 Rounds suitable for hot climates are also stencilled "Tp."

The complete round consists principally of :-

Shell filled petrol/oil mixture
Bursting charge of pentrite wax
Incendiary igniter
Fuze Wgr. Z 50 +
Gaine Gr. Zdlg. C/98 Np
Tail unit with propellant charge and ignition system
Electric ignition fuze

Boxes containing the following components are issued separately:-

12 fuzes Wgr.Z.50 + each in a separate plastic container.
15 gaines packed 5 in a plastic container
16 single electric ignition fuzes and 4 quadruple fuzes in a cardboard box.

SHELL

The overall length of the shell is 31.6 inches and its diameter 12.8 inches. The empty body weighs 13 lb. 12½ ozs. and is of thin sheet steel 0.07 inches thick; it is welded circumferentially at about its centre. Two circumferential ribs are also formed in the body, one below the head and the other above the streamlined base. The head is shaped to a low crh and prepared to receive a plastic adapter which incorporates a gaine container. Near the nose is a charging hole closed by a plug. The base is streamlined and terminates in a short cylindrical tube which is screwthreaded internally to receive the tail tube.

The incendiary filling is a brown liquid consisting of 11¼ gallons of petrol/oil mixture.

The bursting charge consists of a cylinder of penthrite wax surrounding the gaine container.

The incendiary igniter is contained in a soldered tin sheet cylinder, 24.1 inches long, placed axially in the shell with one end butting against the base of the gaine container.

FUZE AND GAINE

The fuze used is one of the Wgr Z 50 + type referred to in Item No.1255 of this bulletin.

The gaine is the large size C/98 Np described in Bulletin 26 Item 464 and illustrated in Fig. 170.

TAIL UNIT (Fig.512)

The tail unit has an overall length of 19.9 inches and weighs approximately 49 lb. 8 oz. filled. It consists of the following principal components, tail tube, venturi block, propellant charge, a grid, spacing ring and an ignition system. Typical stencilling on the tail tube is shown in Fig.512. The internal metal parts are not rust proofed.

The steel cylindrical tail tube weighs 23 lb. 14 oz. and appears to be a solid forging machined inside and out to a diameter of 5.5 inches and 5.05 inches respectively, and internally to a depth of 18 inches; it is closed at the forward end and screwthreaded externally for insertion in the base of the bomb body. The venturi end has a coned opening and is screwthreaded externally to receive the venturi block.

The solid venturi block weighing 9 lb. 6$\frac{3}{4}$ oz. is cup shaped to an overall depth of 3 inches and an internal depth of 1.75 inches; it is screwthreaded internally for attachment to the tube. Externally, it is chamfered towards the top. Twenty-six venturis, equally spaced, are formed in the base near the perifery; each have a throat diameter of approximately 0.22 inches and the cones are inclined at 14 degrees to rotate and stabilise the rocket in flight. The venturis of rockets suitable for hot climates are sealed on the outside by a "soldered on" flat tinned iron ring which blows off on ignition. The area of the base surrounded by the ring of venturis is recessed to a depth of 0.1 inches, also bored centrally and screwthreaded to receive an adapter screwed in from the inside. The base is stamped "DOVT 15 WU 26 x 5.5 ⌀ 14°, all 8c, 41." The stamping includes characteristics of the venturi, i.e. the number, throat diameter and inclination.

The propellant charge, weighing 14 lb. 6$\frac{3}{4}$ oz. is a single multi-perforated stick of double base propellant of the Digl type, having eight longitudinal "V" section channels formed in its exterior when extruded from press. The propellant of the round examined consisted of nitrocellulose 62.5 per cent, diethylene-glycol-dinitrate 33.6 per cent, volatile matter 0.6 per cent, stabiliser (probably akardite) 0.6 per cent, graphite 0.12 per cent, ash (carbonated) 0.75 per cent, error and undetermined matter 2.43 per cent. The stick is 16.27 inches long and 4.79 inches in diameter, with a central perforation, star shaped in section, surrounded by eight circular perforations equally spaced on a circle 2.6 inches in diameter. The tropical propellant is marked "Dgp. DOP. 15 Wu (Digl.Ngl.) Tp.dbg 142/2" and the non tropical "DO.Wu.P.15 (Digl) dbg 1942.12". The base of the propellant is supported by a grid.

The grid consists of an annular ring 3/16 inches thick, 4$\frac{5}{8}$ inches external and 3$\frac{1}{8}$ inches internal diameter, supported by six small cylindrical distance pieces $\frac{1}{2}$ inches in diameter and $\frac{3}{8}$ inches high from a flat plate 1/10 inches thick and 4$\frac{3}{8}$ inches in diameter. The grid is bolted to the front face of the venturi block by the adapter.

The adapter is a cylindrical tube with a hexagon flange formed at one end. The stem portion is screwthreaded externally for insertion in the block and internally to receive the electric ignition fuze. The adapter is inserted from the front; for transportation it is closed by a screwed plug.

Between the grid and the block is a thin aluminium washer which closes the venturis.

The free space at the forward end of the propellant is taken up by a split spacing ring with ten pairs of lugs bent inwards to form a "U" shape in section.

The ignition system consists of a forward and rear igniter, inflammable tubes in the propellant perforations, (the centre one being primed), and an electric ignition fuze.

The forward igniter consists of a pressed pellet of gunpowder with a perforated strip of nitrocellulose across its face, in a flat circular aluminium container. The igniter is held in a holder in the form of a washer fitting in the head of the tube with its inner edge turned over to hold the igniter centrally within the spacing ring. The open side of the igniter faces the propellant stick.

The rear igniter consists of a flat rough circular bag containing 10 grains of igniter composition in the form of 6 pointed star-shaped flakes; it is housed centrally between the base of the propellant and the adapter. The bag is marked Wz.Man.St.P (2 . 55/23) dt 1938/5. WO. 7.8.42 W.

The inflammable tubes found in the annular holes in the propellant, are slightly shorter than those in the central hole and are not primed. A report suggests that these tubes are usually placed in the V channels in the side of the stick. The tube in the central hole contains what appears to be quickmatch and each end is closed by a gunpowder pellet. The forward end is housed centrally within the forward grid opposite the forward igniter. The rear end is in contact with the rear igniter.

The electric ignition fuze, enclosed in an aluminium tube and bakelite container, is screwed into the central hole of the adapter. It may be fired from a four volt battery. Rounds may be fired singly. For firing from the wurfgerat, four ignition fuzes, externally similar in appearance, are wired in series. One only, tagged "0", is instantaneous, the remainder, tagged "2", "4" and "6" include powder pellets so as to fire after intervals of 2, 4 and 6 seconds respectively.

1255. GERMAN FUZE Wgr Z 50 + (TYPE A) FOR ROCKET PROJECTILES
(Fig. 513)

Three types of Fuze Wgr Z 50 + have been met with, each is similar in principle but differ in detail. For convenience in reference they are referred to as types A, B and C. The fuze described in Bulletin No.44. Item 1213 is type B.

A plastic adapter is provided to enable the fuzes to be fitted in the standard 5 cm (1.96 inch) fuze hole, and a plastic container is also provided for packing in transport.

TYPE A.

This fuze differs from type B, externally in its contour at about the flange and, internally in the shape of the needle holder, detonator holder and the centrifugal bolts with spring. The remaining components are similar to type B.

The base end of the needle holder is lengthened and recessed on its underside to form a sleeve accommodating the forward end of the detonator holder. The sleeve portion is provided with two radial holes through which pass the inner ends of two centrifugal bolts.

The detonator holder is reduced in diameter at the forward end and and provided with a circumferential groove to receive the inner ends of the centrifugal bolts when in the unarmed position.

The centrifugal safety mechanism consists of two bolts each with a spiral spring and securing plug. The bolts are accommodated in radial borings diametrically opposed in the fuze body so that in the unarmed position the bolts pass through the sleeve portion of the needle holder to engage the circumferential groove in the detonator holder. They are retained in this position by a brass spiral spring seated between the outer ends of the bolts and a screwed closing plug. The bolts and the plugs are recessed to form a seating for the spring.

ACTION

Before firing The safety pin is withdrawn and the cap removed. The needle is separated from the detonator by the centrifugal bolts which lock the needle holder and detonator holder together.

After firing. During acceleration the needle holder sets back and prevents the outward movement of the centrifugal bolts until the projectile is well clear of the projector. When the centrifugal force is sufficient to overcome the friction between the needle holder and the bolts and the resistance of the springs, the bolts move outwards thus allowing the needle holder and detonator holder free movement. The needle holder moves forward slightly under the action of the creep spring which also prevents creeping of the detonator holder.

NOTE. A red band around the needle holder is exposed when the fuze is in the armed position.

On impact the needle is forced on to the detonator by direct action. On graze the detonator is carried forward on to the needle, or it may be forced on to the needle by a sideways movement of the inertia collar. The flash from the detonator passes through the central fire channel in the inertia collar and base plug to the gaine in the shell.

FIG. 497. (ITEM 1221.)

SHELL, Q.F. H.E. 17 Pr. AND 77mm. MARK II.T.

METHOD OF CONVERTED FILLING D.D.(L) 18957.

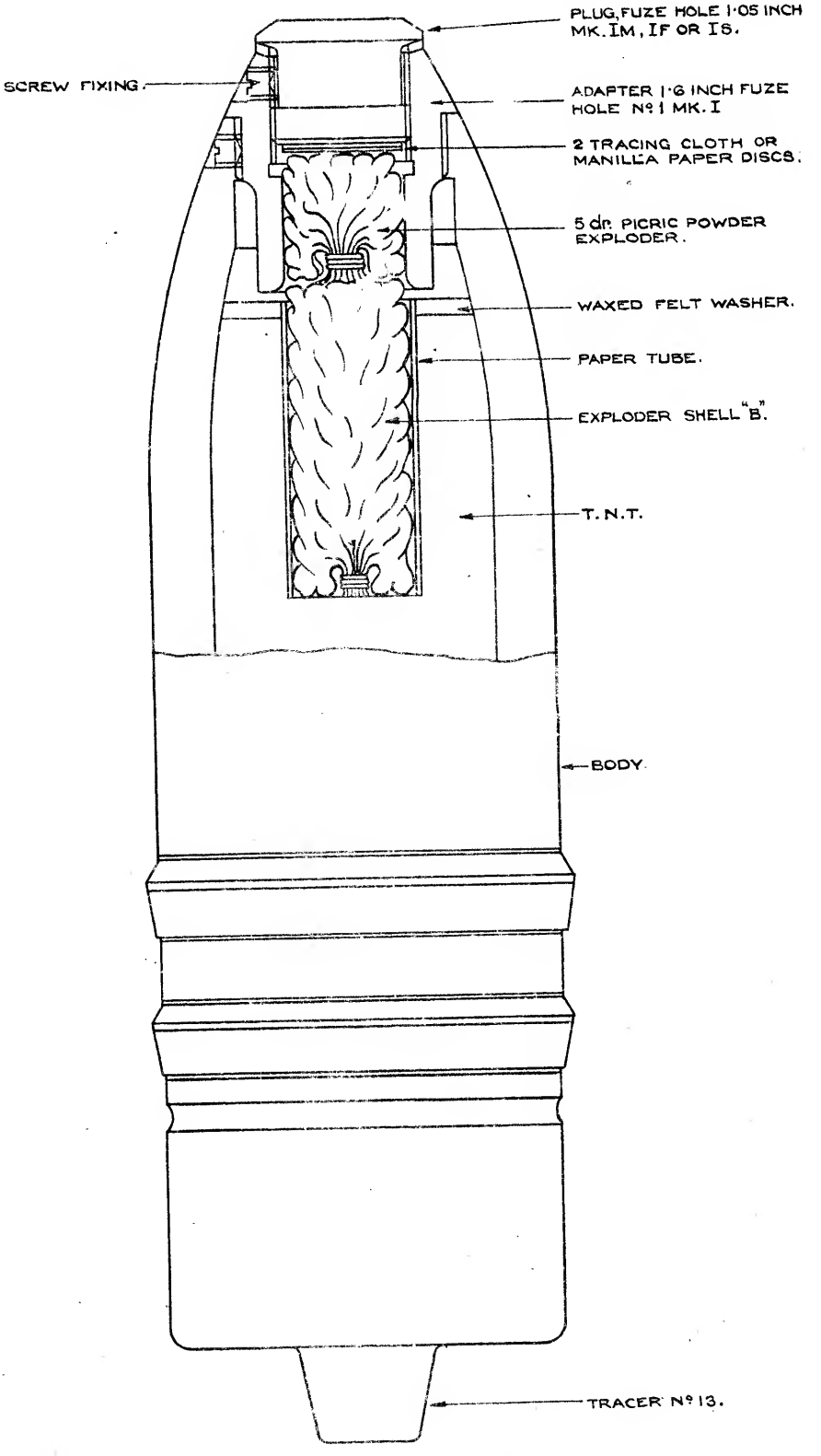


FIG. 498 (ITEM 1222)

GRENADE, DRILL, HAND, Nº 36 M. MK. II.

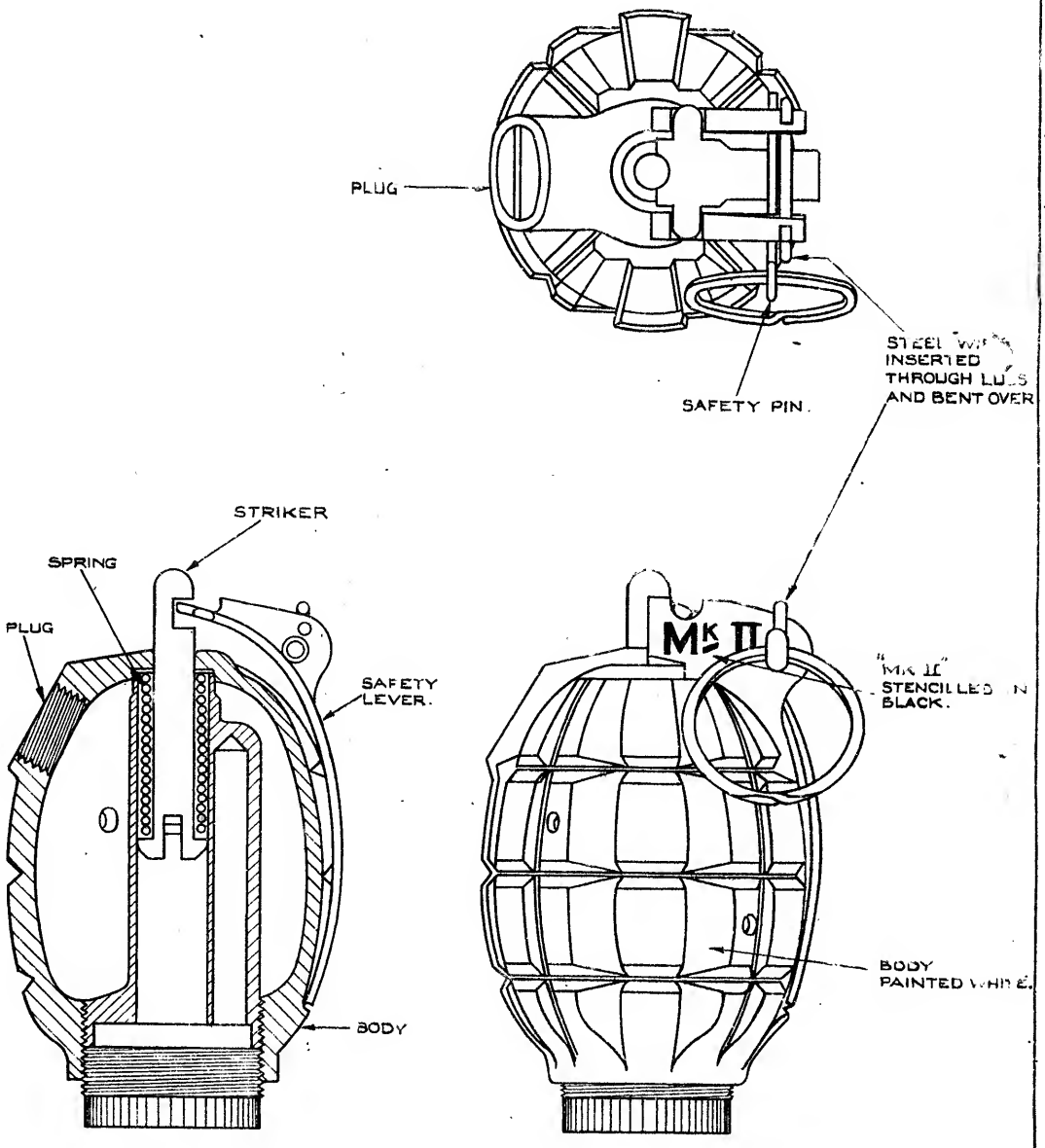


FIG. 499. (ITEM 234.)

KEY, Nº 36 M. GRENADE. ALL PURPOSES, MK. 1.

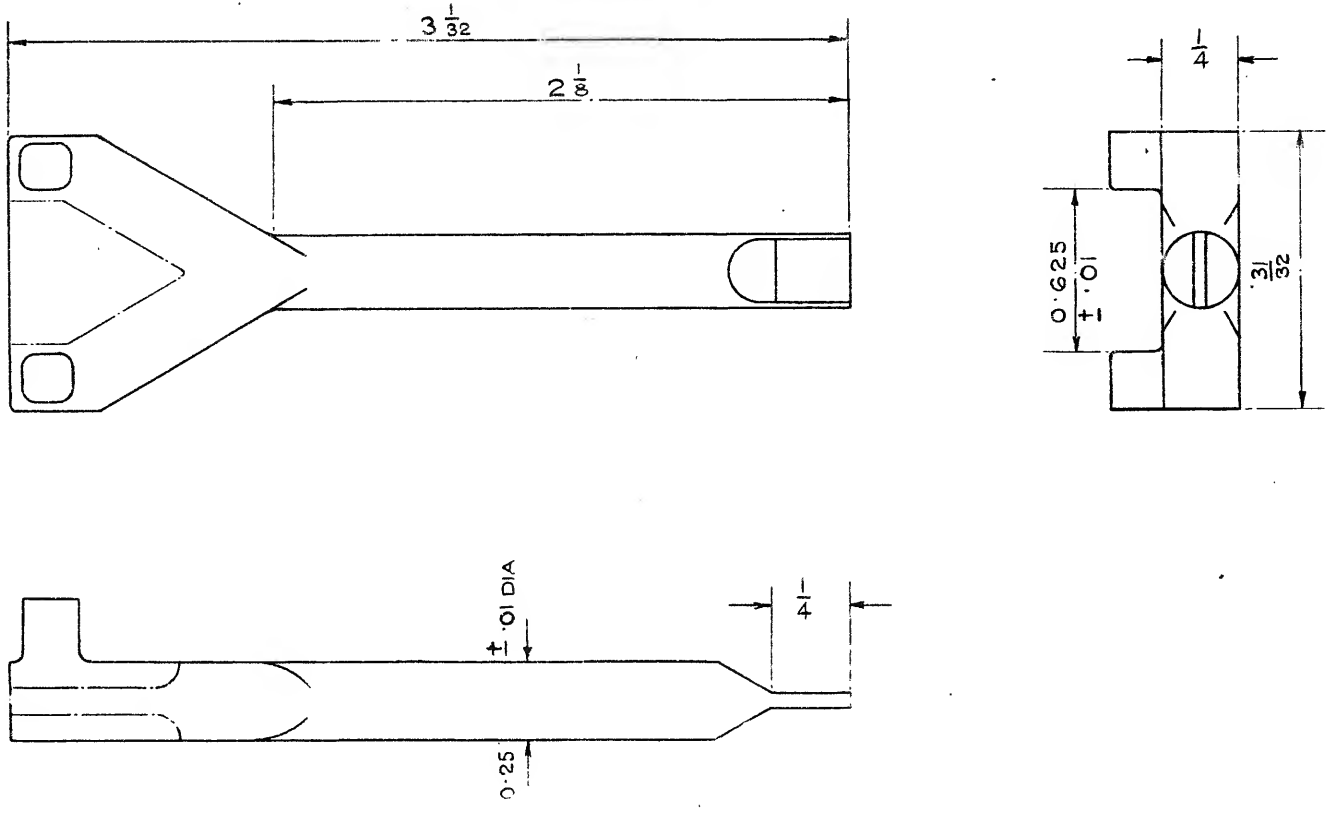
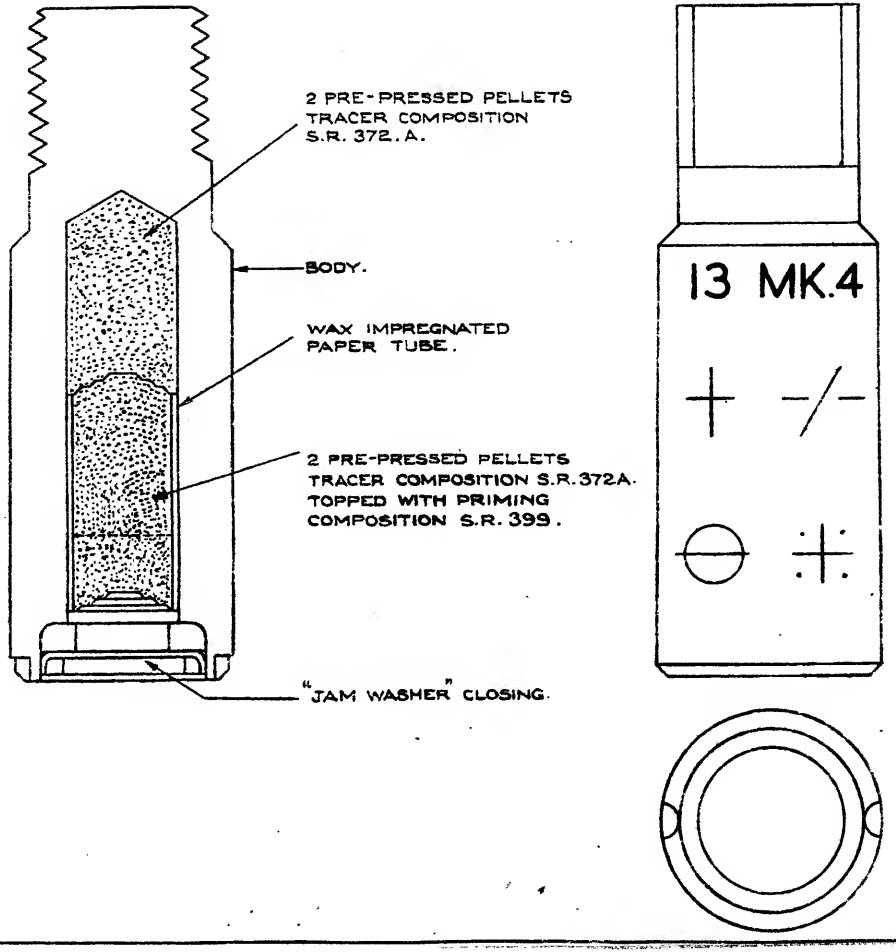


FIG. 500 (ITEM. 1241.)

TRACER, SHELL, Nº 13. MK. 4. (EXTERNAL.)



MARKINGS.

EMPTY:- + CONTRACTOR'S INITIALS OR RECOGNISED TRADE MARK.

-/- YEAR OF MANUFACTURE AND SERIES LOT Nº

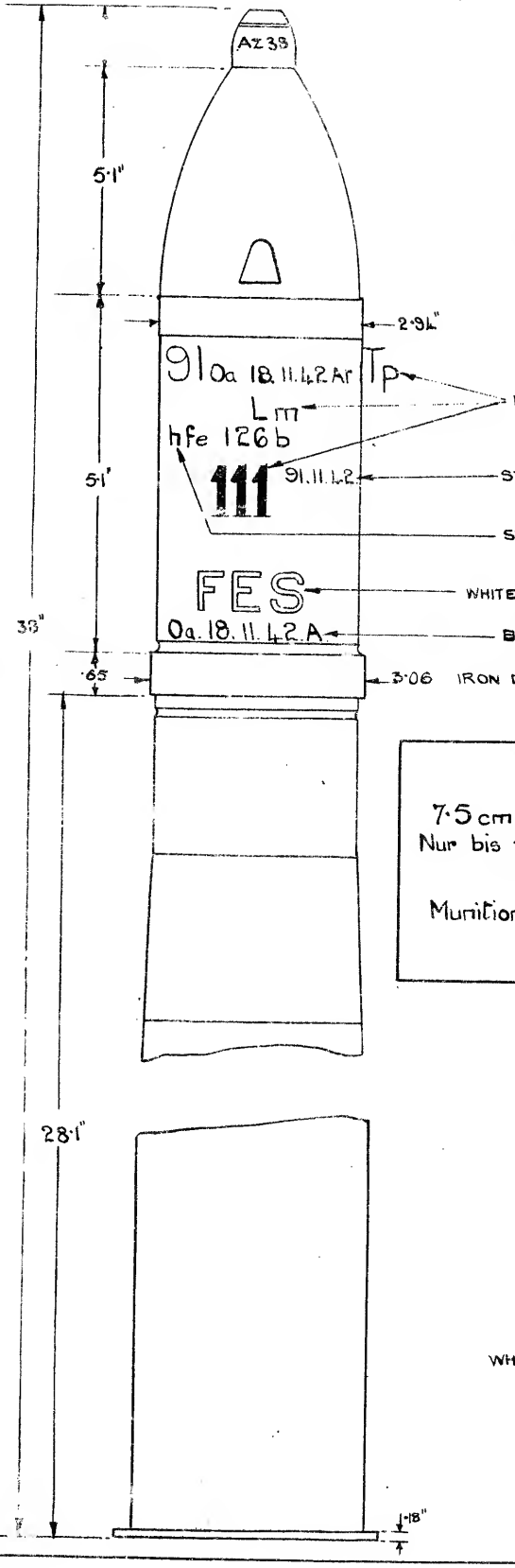
FILLED :- ⊖ INITIALS OF FIRM FILLING OR MONOGRAM OF FILLING STATION.

⁘ DATE OF FILLING (DAY, MONTH & YEAR.)

GERMAN 7·5 cm. [illegible] 40 CARTRIDGE, Q.F. HOLLOW CHARGE.

FIG. 501. (ITEM. 1246.)

NOT SCALED (APPROX. 1/2 SIZE.)
WEIGHT. 17LB. 6OZ.



SHELL AND CAP PAINTED DEEP OLIVE.

BLACK STENCIL.

STAMPING.

STAMPING.

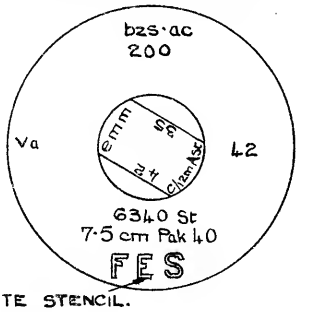
WHITE STENCIL.

BLACK STENCIL.

PACKAGE LABEL.

Achtung
7·5 cm. Gr. Patr 38 H1/B Tp Kw.K40.
Nur bis zu Temperaturen + 65°
Sonst Rohrzer springer
Munition vor Sonnein bestrahlung
Schutzen!

BASE STAMPINGS.



WHITE STENCIL.

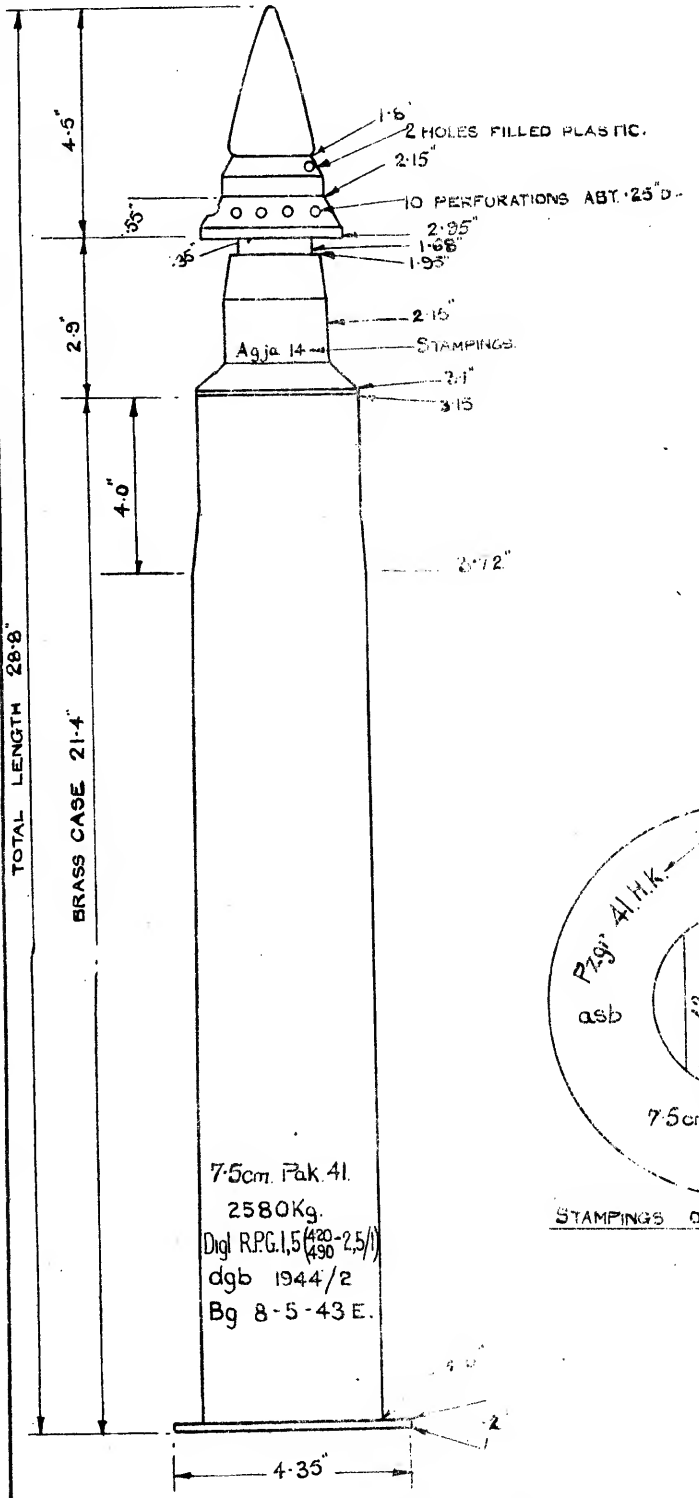
E.A.
MARKINGS.
SK. Nº 117.
28-4-43.

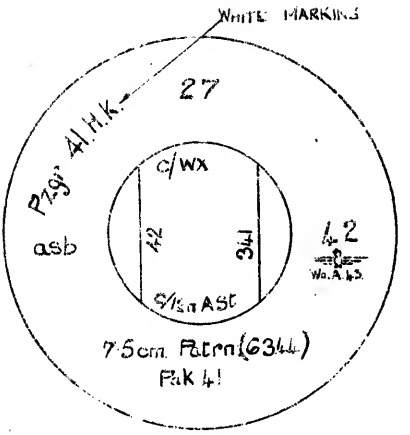
GERMAN 7·5 cm CARTRIDGE Q.F. A.P.B.C. SHOT (Pzgr. 41 HK)

RECORD OF MARKINGS.

NOT SCALED
WEIGHT 17LB. 2OZ. 3DR.

(FIG.502. ITEM.1247.)



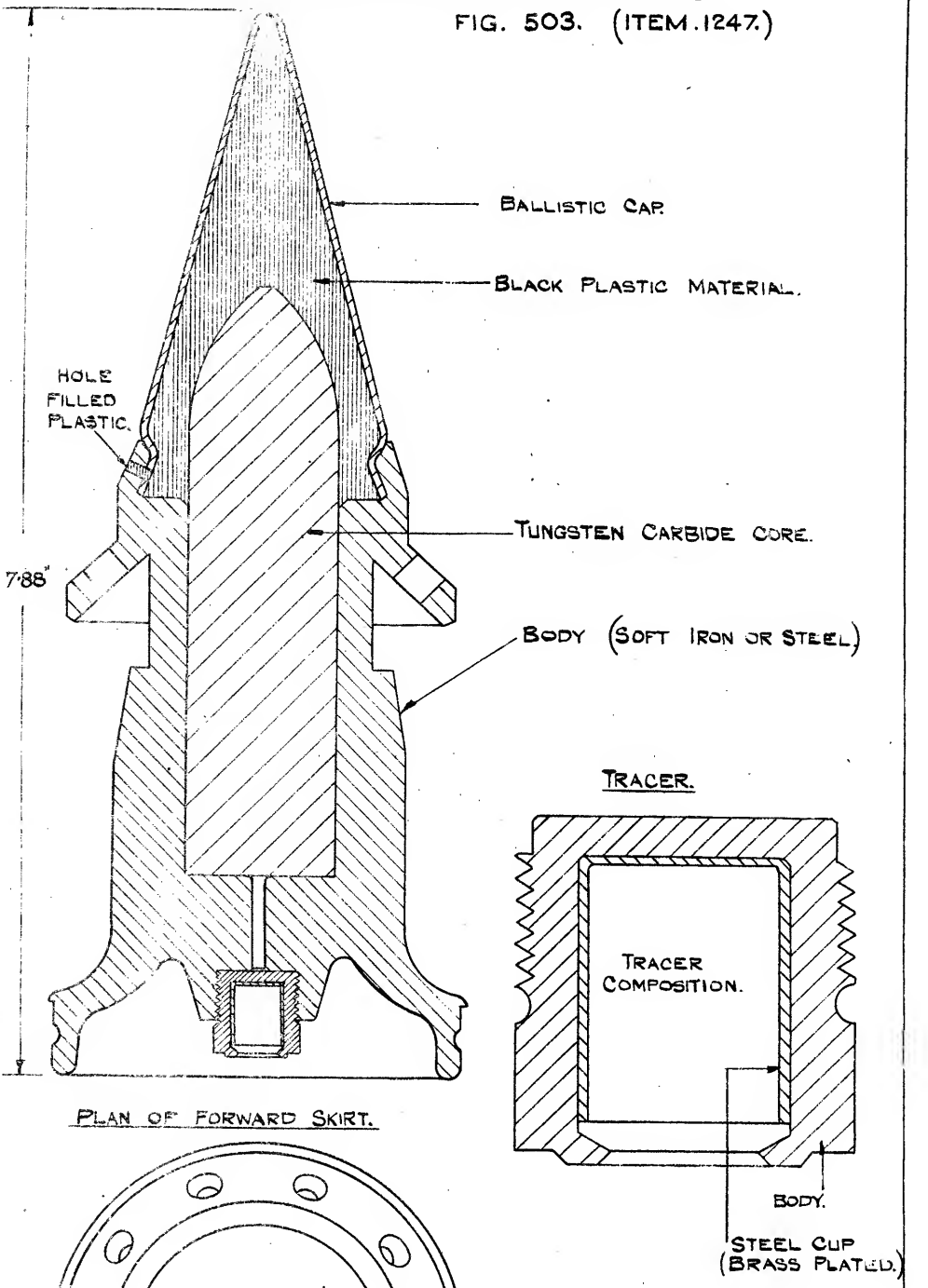


STAMPINGS ON BASE AND PRIMER

E.A.
MARKING.
SK. Nº 300.
I.P.C./D.O.

GERMAN 7·5 cm. A.P.C./T. SHOT [Patr. Pzgr. 41 (HK)]

FIG. 503. (ITEM. 1247.)

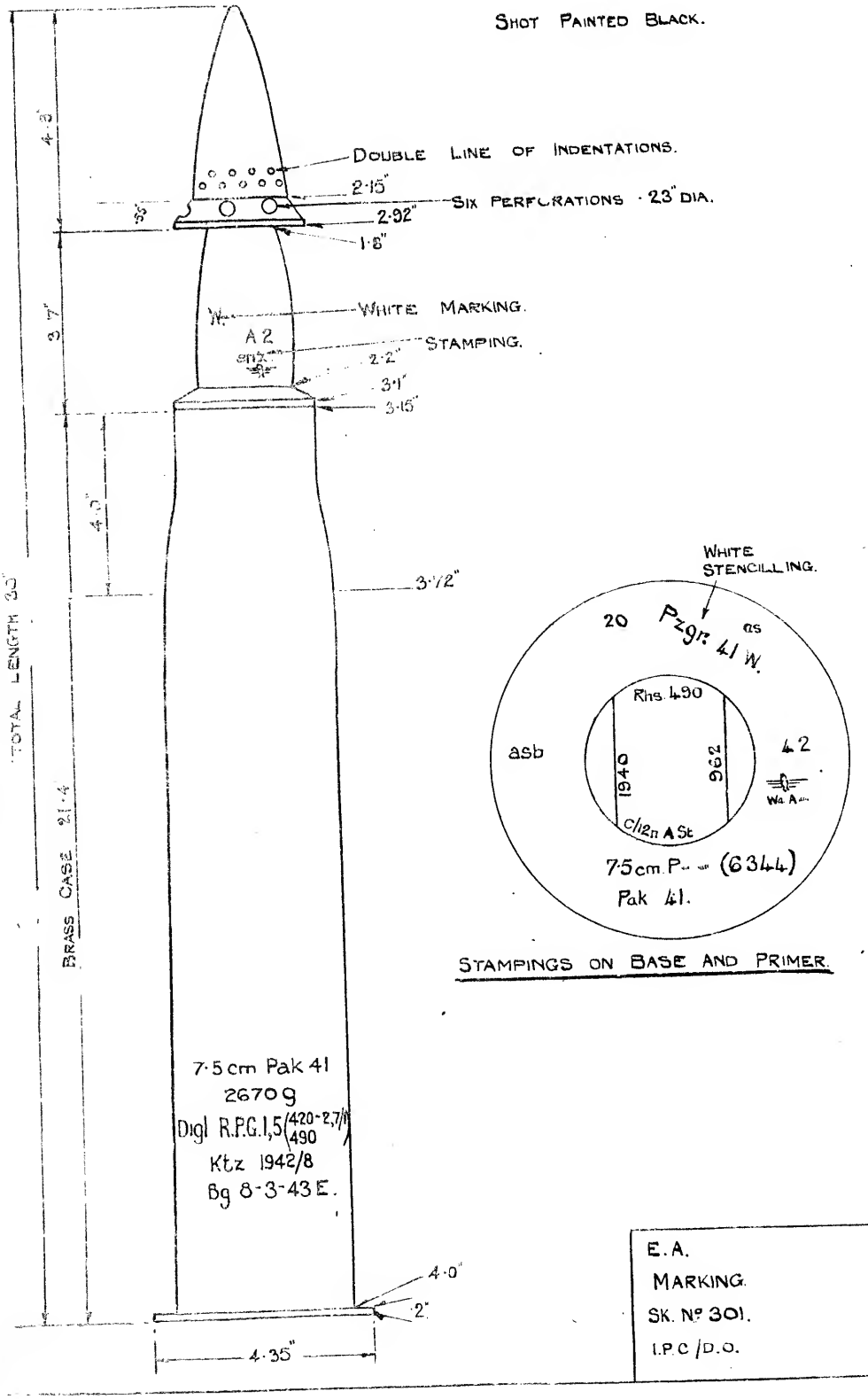


GERMAN 7·5cm. CARTRIDGE Q.F. A.P.B.C. SHOT. (Pzgr 41.W.)

RECORD OF MARKINGS. (FIG. 504. ITEM.1248.)

NOT SCALED.

WEIGHT. 16LB. 15OZ. 10DR.



STAMPINGS ON BASE AND PRIMER.

E.A.
MARKING.
SK. Nº 301.
I.P.C./D.O.

GERMAN 7·5 cm. A.P.B.C./T. SHOT [Patr. Pzgr 41 (W)]

FIG 505 (ITEM. 1248.)

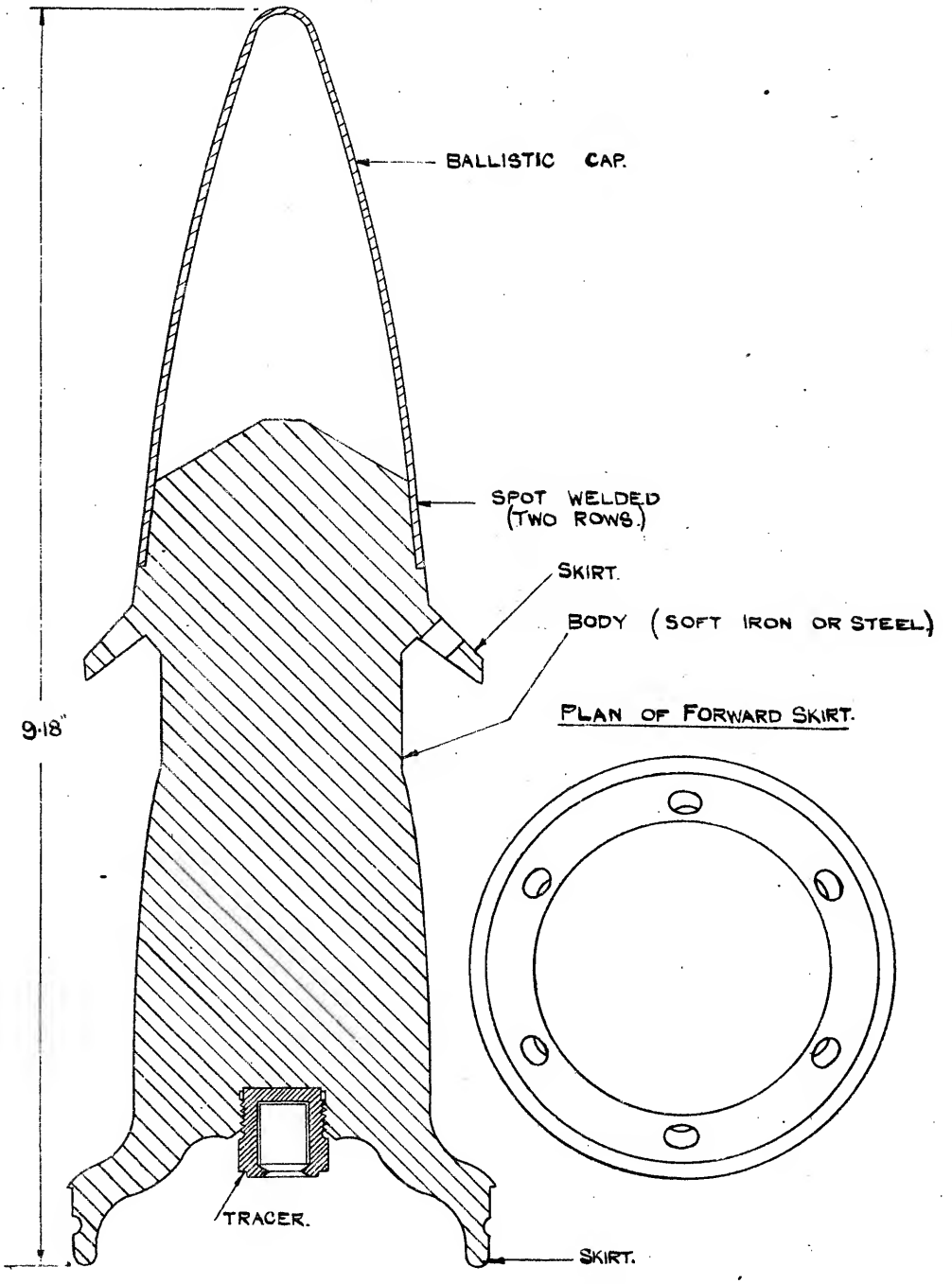


FIG 506. (ITEM.1249.)

GERMAN 7·62 cm. Pak.36 A.P.B.C./T. SHOT WITH T.C. CORE.
(7·62 cm. Panzergranate-Patrone 40)

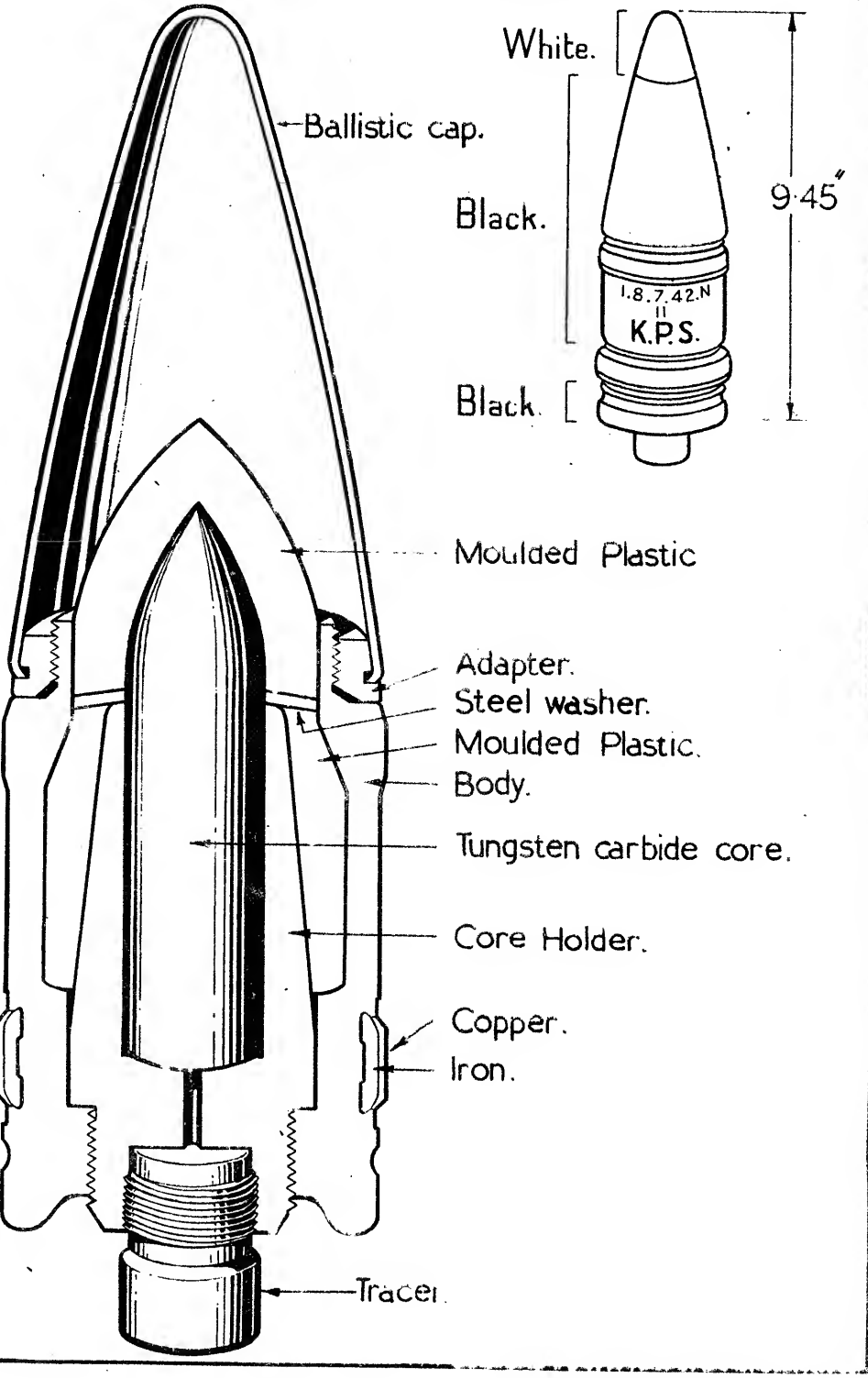
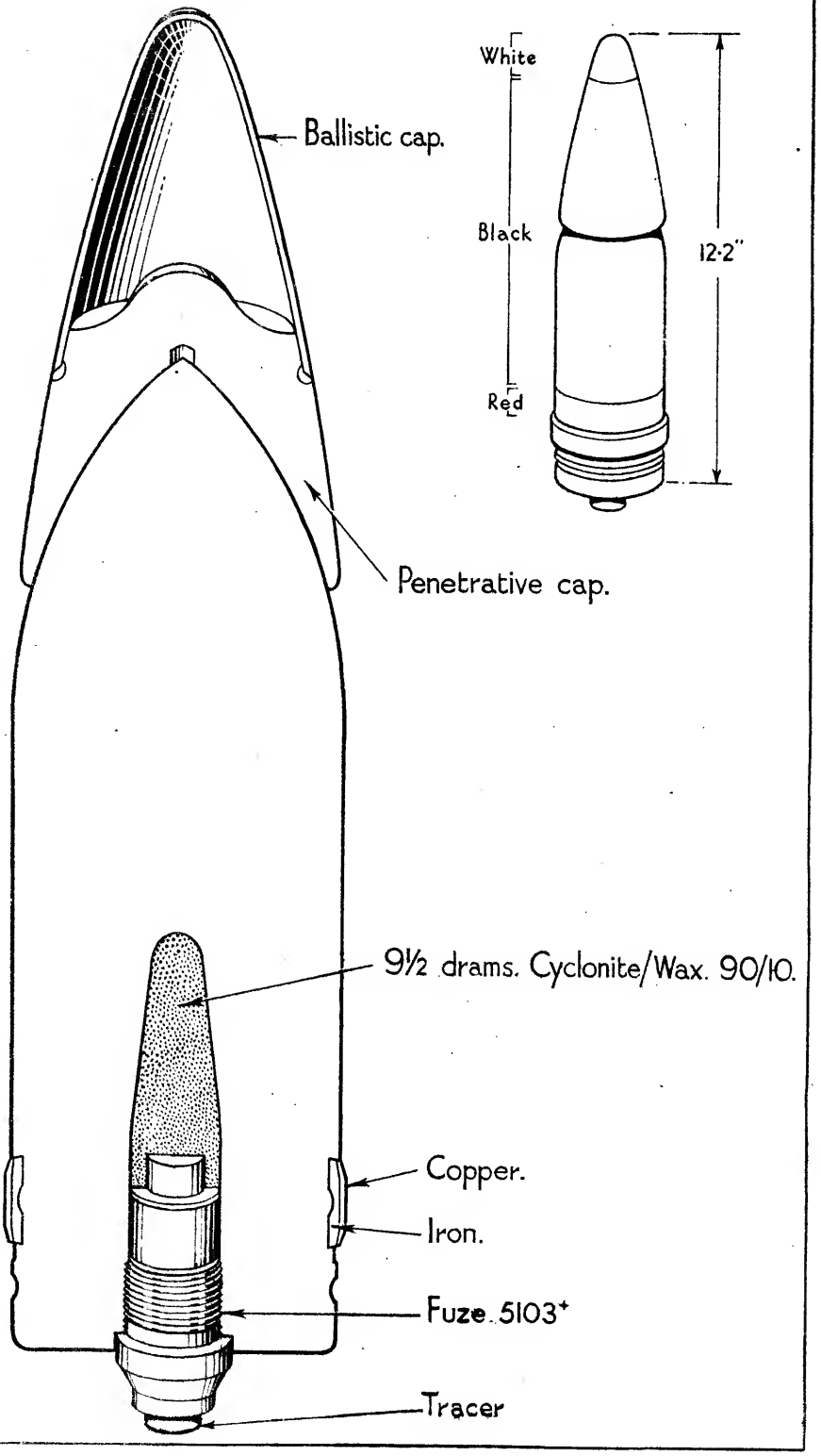


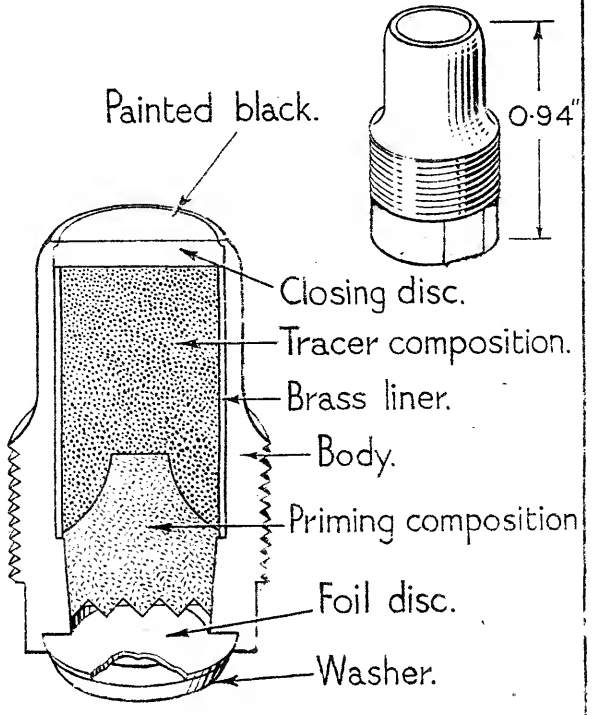
FIG. 507 (ITEM 1250.)

GERMAN 7·62cm. Pak 36 A.P.C.B.C/T. SHELL.



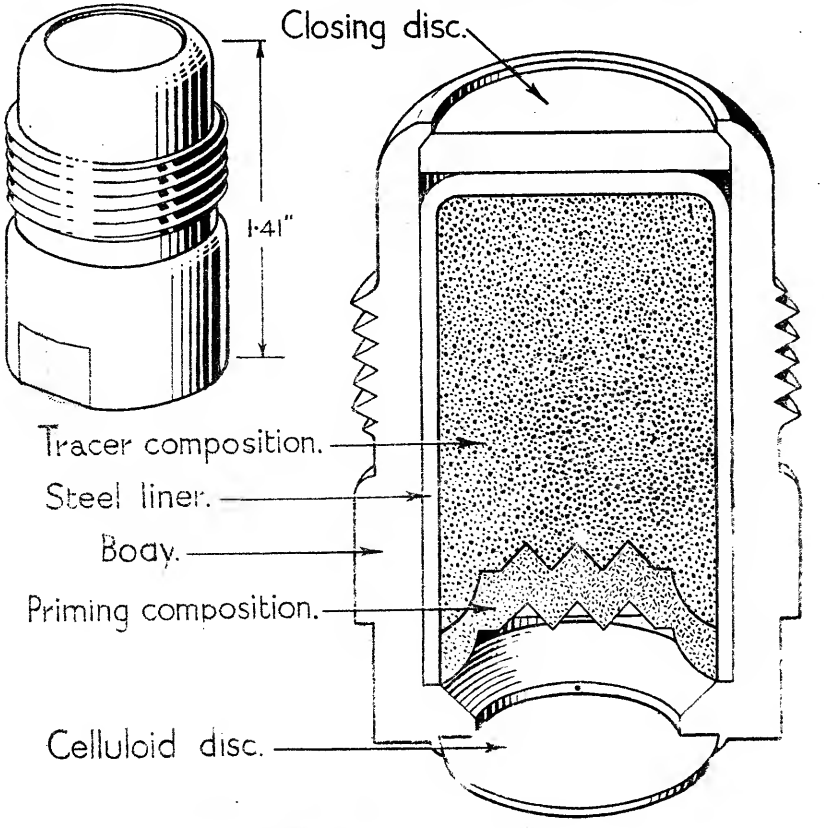
GERMAN TRACERS.

FIG. 508. (ITEM.1251.)



A.P.C.B.C. SHELL.

FIG. 509. (ITEM 1252.)

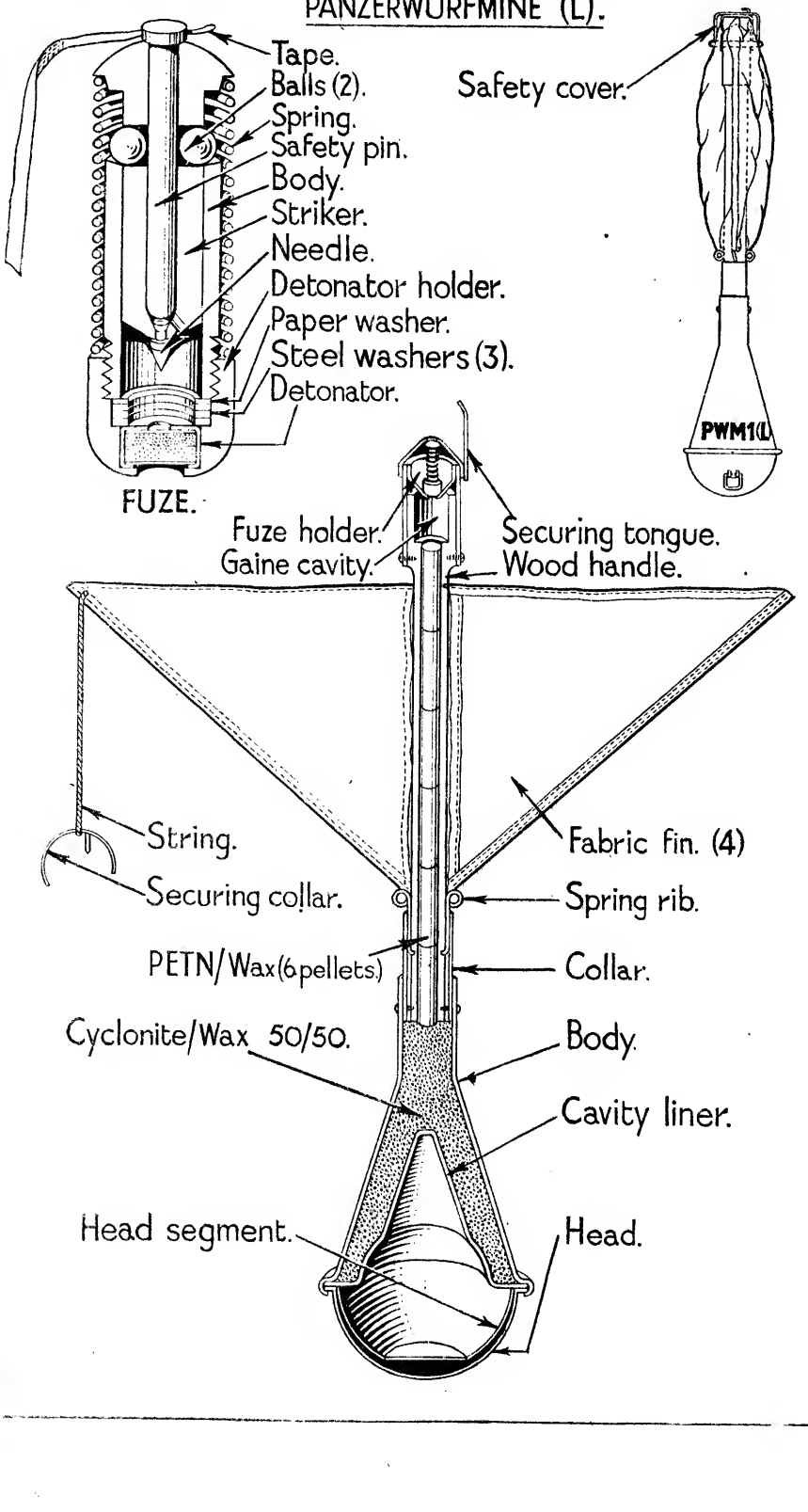


A.P.B.C. SHOT

FIG. 510. (ITEM.1253).

GERMAN HOLLOW CHARGE ANTI-TANK HAND GRENADE.

PANZERWURFMINE (L).

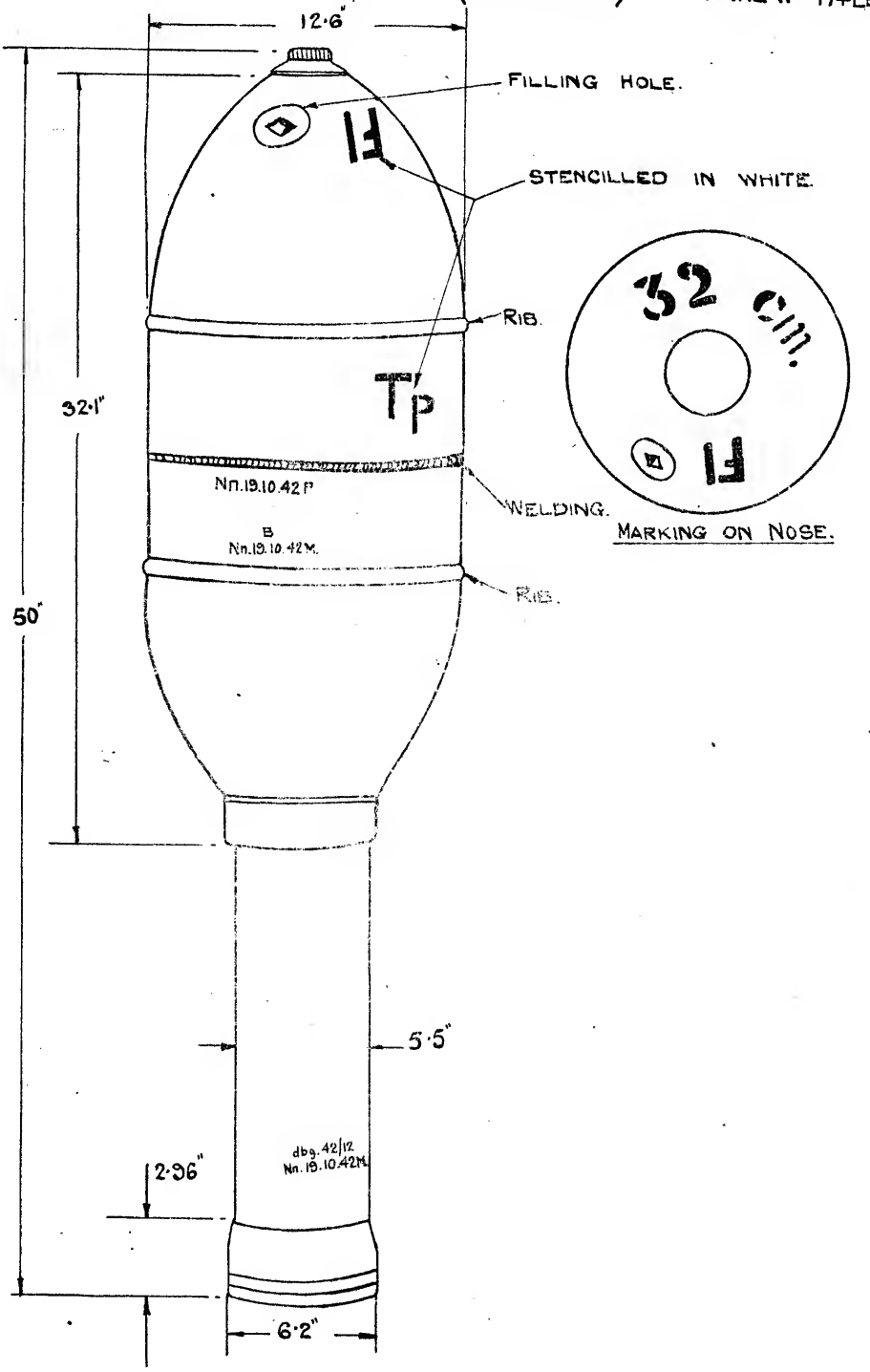


GERMAN 32 cm. INCENDIARY ROCKET.
32 cm. WURFKORPER M. Fl. 50.

RECORD OF MARKINGS.

FIG. 511 (ITEM. 1254.)

NOT SCALED.
TOTAL WT. 174 LB.



MARKING ON NOSE.

E.A.
MARKINGS.
SK. Nº 319
I.P.C./D.O.

GERMAN 32 cm. INCENDIARY ROCKET - TAIL UNIT.

(32 cm. WURFKORPER M. FI 50.)

FIG. 512. (ITEM. 1254.)

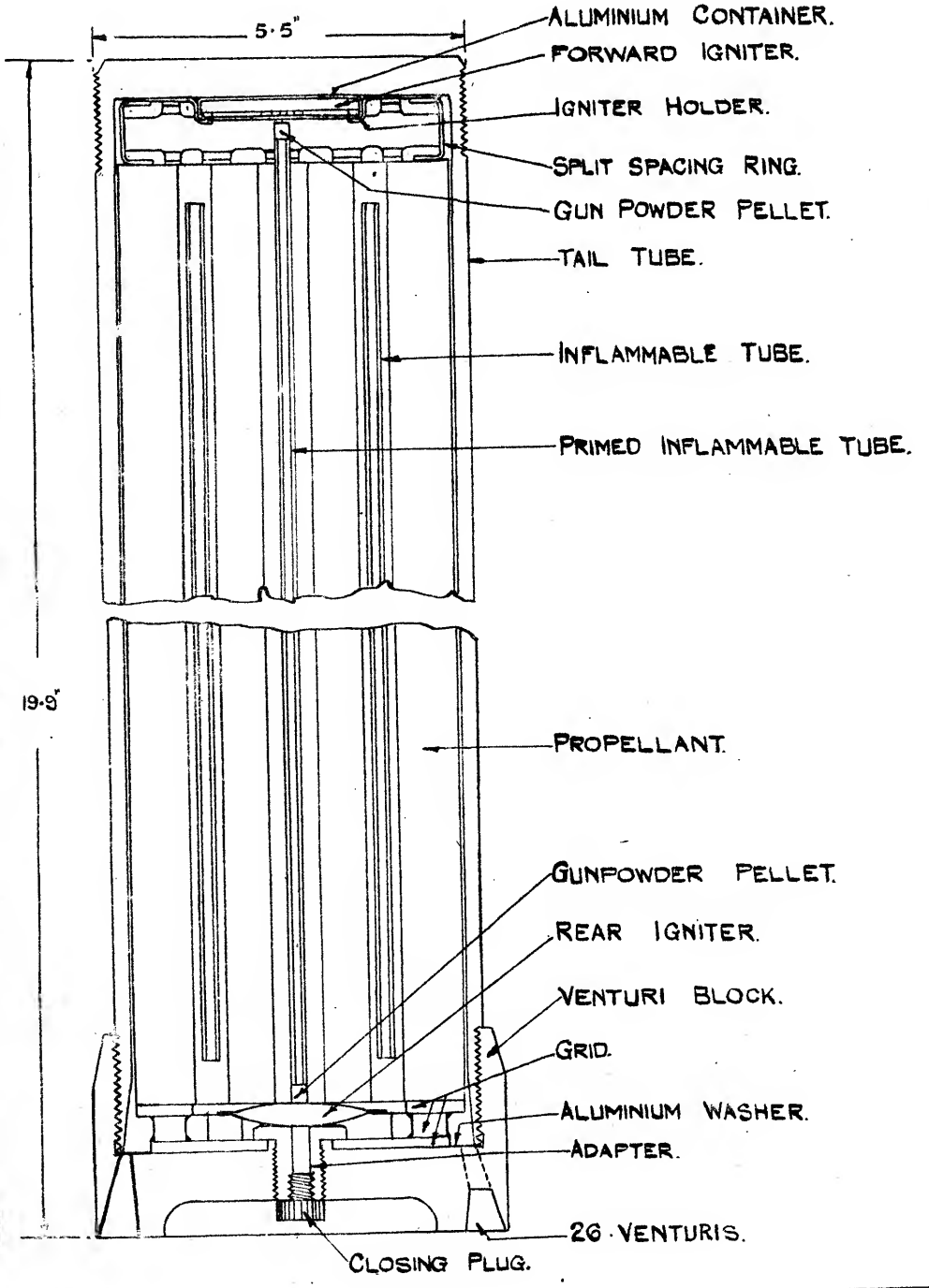


Fig. 513. (Item 1255.)
GERMAN FUZE Wgr. Z 50+ (TYPE A.)